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A National Newspaper for Every Branch of the Industry

# Automotive Daily News

CARS · SHOP EQUIPMENT · TRUCKS · AVIATION · PARTS · ACCESSORIES · TIRES

Vol. 13. No. 1764 — Entered as second class matter Aug. 27, 1925, Post Office, N. Y., N. Y., Under Act of March 3, 1879. — NEW YORK, SATURDAY, JULY 2, 1932 — 5 Cents. $12 Per Year.

## Dealer Car Inventories Increase in June Over May; Total Now Put at 200,000

### Nothing Alarming Is Seen in This Situation, as Stocks Now Are 98,700 Units Below Figure For July 1 Last Year

New York, July 1.—Inventories of new passenger cars in the hands of distributors and dealers in the United States today stand around the 200,000 mark for the first time since last fall. Stocks of new cars continued through June to show a gradual upward trend, with Ford dealers adding to their floor supplies of new models.

There is nothing alarming in the current dealer stock situation, however, with the inventories still some 98,700 units below what they were a year ago at this time. The July 1 figure, of course, is only tentative and may be revised when official production and sales figures for the month are available.

The June 1 estimated figure for dealer stocks has been revised upwards on the May statistics now at hand, and the total as of that date is now put at 187,000, as against the 180,000 at first estimated. The increase of 7,000 in stocks over and above the first estimate was caused by failure of May exports to come up to expectations by 5,500 and the failure of sales in the domestic market to reach the forecast by 4,000. On the other hand production was somewhat short of the estimate for May made at the time the June 1 stocks were estimated. These factors accounted for the difference of 7,000.

The best estimates on June production, retail sales and exports now available indicate that stocks of new cars in the hands of dealers and distributors, or en route as of July 1 totaled 201,000, an increase of 7.4 per cent. over June 1 and 32 per cent. below the 299,700 estimated for July 1, 1931.

After the drastic reductions in dealer car stocks during the late

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## AUTOMOTIVE ORDERS SPUR STEEL ACTIVITY IN YOUNGSTOWN AREA

**Youngstown, O., July 1.—Youngstown Sheet and Tube Company yesterday started operations in twelve of its sheet mills in this city. This is the largest number of mills that the Youngstown company has had in operation for several weeks. The work that led to the reopening is sheet rolling for automotive manufacturers.**

The Mahoning Valley Steel Company still has six of its mills in operation at its Niles plant, rolling sheets. The Republic Steel Corporation has eight sheet mills running at Niles and three at Warren. The Carnegie Steel Company is planning to start work at its mills in Youngstown after the July 4 holiday. All the mills will shut down over the week end, reopening July 5.

Practically all the activity in this district has been stirred up by automotive orders, even though some work for other industries is being done.

## FAULTY DISTRIBUTION WEAKNESS OF AMERICAN BUSINESS, SAYS MOONEY

**Lake of Bays, Ont., July 1.—Speaking before the annual convention of the Society of Mechanical Engineers, James A. Mooney, vice-president of General Motors in charge of overseas operation, yesterday cited faulty methods of distribution as "probably the greatest weakness of industrial organization during the past decade."**

"Distribution in its present chaotic state needs the attention of the engineer mind, needs the scientific approach with its respect for accurate identifications and standardized nomenclature, and needs a new respect for the value of truth and economic realities," Mr. Mooney said.

The trend of industry in this country, Mr. Mooney declared, has produced great increases in production efficiency but has lagged in bringing up distribution to the same level of effective operation.

"Administrators in industry must face their responsibility more fully to relate the capital investment in production facilities to the general economic background and the probable market available for the product so that greater assurance can be provided for continual operation, a continual fair return on the capital employed, and continual employment," he said.

In meeting the problem of employment for its wage earners, industry should be free to change wage rates up or down to meet changing economic conditions, but must also "face its responsibility of providing greater economic security

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## NASH OFFERS NEW AIRWHEEL TIRES ON TWO SERIES

**Kenosha, Wis.,** July 1.—The Nash Motors Company has added another feature to its new Big Six and Standard Eight models by arranging to supply special Airwheel Tire wheels and the new Goodyear Low Pressure Airwheel tires for all of the cars in these two new Nash series at slight extra cost to the Nash buyer.

The special new wheel is a fifteen-inch wood wheel with a 5.50 rim and is equipped with the new "Donut" low pressure, which carries a pres-

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# *Detroit Awaits Buyers' Verdict In Determining July Schedules*

### Sales Hold Strong in Latter Part of June but Tax Doding Sales Befuddle Forecasts; July Output Drop Seen

*By CHRIS SINSABAUGH*

Detroit, July 1.—Production lagged the last week in June, in marked contrast to sales, which seem to be holding up remarkably well following the sensational spurt that took place just prior to the heavy Federal tax going into effect. At that, the industry is not goingtobe ashamed of the final production figures for June, while the sales activity is cause for hope that perhaps the tax ax day pick-up really meant something.

The sales repsonse to tax ax day surprised the factory folk. They had looked for some response, but were not prepared for the eleventh-hour rush of orders. As a result, we find all available stocks have been shot into the field to meet this demand, but the manufacturers did not step up production in consequence of this housecleaning. Slowing production the last week permitted them to clean up all orders and start July set to temper the wind to the shorn lamb. If sales keep up, so will production, but at this writing it is not safe to make any predictions.

It will be several days more before the industry gets the answer. Reports on the third ten-day period last month will not be in until the middle of next week, when a check-up will show if it was the tax that caused the spurt or if the people really are coming into the market. There are some optimistic enough to believe the latter is true.

As to July production, it looks as if there should be no false hopes as

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## DODGE REPORTS 47.9% INCREASE IN RETAIL SALES LAST WEEK

**Detroit, July 1.—While they increased 31.2 per cent. over the previous week, total deliveries of passenger cars and trucks by Dodge dealers for the week ended June 25 also registered a gain of 47.8 per cent. over the like period in 1931 and reached the highest peak since August 29, 1931. This is the highest percentage of increase for one week over a previous week that has been reached so far this year.**

In a nine-week period from May 3 to June 25, deliveries by Dodge dealers were 9.2 per cent. more than in like period in 1931.

Deliveries of Dodge trucks in the week ended June 25 were 48.8 per cent. more than in the week ended June 18, showed an increase of 2.6 per cent. over the like period in 1931 and reached the highest figure since July 4, 1931.

J. D. Burke, director of Dodge truck sales, said that as far as can be learned, the gain for the week was made by individual dealer sales and does not include fleet business.

## NEW YORK STATE MAY PASSENGER CAR SALES GAIN OVER APRIL

**New York, July 1.—Figures just released by R. L. Polk & Co. covering pasenger car sales in New York state for May disclose a total of 20,424, which compares with 19,120 units in April, 1932, and with 31,714 in May, 1931.**

While the decrease in sales from the levels of May last year is general, two companies have managed to show a gain in this respect. De Soto this May sold 530 passenger cars, against 460 in May, 1931, and Plymouth made a sales total of

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## CREEGER HEADS BOSTON DE SOTO

**Detroit, July 1.—L. G. Peed, general sales manager of the De Soto Motor Corporation, announces the appointment of A. E. Creeger as Boston district manager for De Soto. Mr. Creeger succeeds F. L. McNulty, resigned.**

Mr. Creeger has had twenty-three years' experience in the auto-

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## JULY 4TH

Due to the July 4 holiday, Automotive Daily News will not be published for Tuesday, July 5. As a result, the first issue of Automotive Daily News next week will be Wednesday, July 6.

## IN 7 YEARS CHRYSLER PAID 35% OF NET PROFITS IN TAXES

**New York, July 1.—In a statement sent to stockholders of the Chrysler Corporation today, with their dividend checks for the second quarter of 1932, Walter P. Chrysler told them that in the past seven years the Chrysler organization has paid in taxes to government a sum equal to thirty-five per cent of the net profits realized. Mr. Chrysler cited this condition as indicating the need for Federal, state and local governmental economy.**

"There is no good reason," Mr. Chrysler said, "why the government itself should be immune to the necessity or desirability to economize which every one else has had to face, and there is certainly no good reason why the government itself, city, state and Federal, should not refrain from needless expenditures that no business could tolerate and still remain solvent.

"Stockholders of Chrysler Corporation who share these views should urge upon their represetatives in Congress and in their states and local communities the necessity for governmental economy and demand that our entire tax system be established on a more equitable basis. Such a course would certainly have a stimulating effect upon business generally, as well as upon our own industry.

"Every stockholder of Chrysler

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## BROADWELL RESIGNS TODAY AS FISK TIRE OPERATING EXECUTIVE

**Springfield, Mass., July 1.—Edward H. Broadwell, vice-president and general manager of the Fisk Rubber Company, last night announced his resignation from that organization. Mr. Broadwell has been an executive of the Fisk company for many years.**

In announcing his resignation Mr. Broadwell stated:

"The decision of the receivers of the Fisk Rubber Company to retire from the original equipment business (selling to car manufacturers) eliminates the necessity of any longer having a manufacturers de-

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## HIGHWAY USERS JOIN FORCES TO FIGHT TAXATION

**Washington, D. C.,** July 1.—Seriously disturbed by the recent sharp increases in automotive taxes and taxes on products entering into the use of motor vehicles, representatives of some fifty national agricultural, industrial and private using groups met here yesterday to see what could be done to stiffen resistance to further burdens.

At the conclusion of the session an informal highway users' conference was decided upon as a clearing house for the development of facts bearing upon this question and an advisory committee was created to set up a plan of operation.

The conference was presided over by Alfred P. Sloan, Jr., president of General Motors Corporation and a member of the board of the National Automobile Chamber of Commerce.

Discussing the problems which confront the owner of a motor vehicle today, Mr. Sloan pointed out that the new federal excise taxes upon automobiles, trucks, tires, accessories, parts, oils and gasoline will add $253,000,000 to a load already amounting to more than

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*Another Prize Winning Letter In A. D. N. Contest—Page 4*

# Dealer Car Inventories Increase in June Over May

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summer of last year, dealer car stocks on November 1 stood at approximately 183,000, above which point they did not rise until June 1 of this year. The industry met with remarkable success in the first half of 1932 in holding production to the actual consumer demand. At no time were dealers under heavy pressure to accept cars beyond their needs.

The July 1, 1932 figure, was arrived at on the following basis: A June production of approximately 160,000 passenger cars in the United States, exports of 6,000 and domestic sales of 140,000. Increased Ford deliveries are counted on to swell the new car sales to the foregoing figure.

It is estimated that Ford dealer stocks are not yet up to normal strength, due to the pressure from customers seeking new models. However, these dealers did increase their supplies for demonstration purposes during June, and undoubtedly will still further increase their stocks during July. Thus far there has been a waiting demand for all the cars produced by the Ford Motor Company. How long this will continue is problematical, but the dealers themselves are confident they won't have to begin curtailing purchases from the assembly plants for some weeks yet.

It also remains to be seen how heavily they will stock after they have caught up with the orders on hand. This will be an important factor in the course of dealer stocks as a whole through the late summer months. If Ford dealers lay in heavy floor holdings, inventories of the industry as a whole probably won't show the normal seasonal decline.

Such a falling off is hardly to be expected, anyway, in view of the fact that stocks now are as low as they normally are at the lowest point of the year. The lowest point reached during the current business depression, however, was 151,300, as of December 1, 1931. Whether they will reach that low level this year or not is a question.

Another opportunity for an official check of dealer stocks has arrived, with the new Federal taxes on cars. Dealers made a count of their holdings on June 20, the day before the next taxes went into effect, and their figures probably will be called for by the government, as they were when former Federal taxes were placed on motor vehicles. Such a check was made in 1926, and since that time only unofficial estimates of dealer inventories have been available.

The following table shows the course of dealer stocks of new cars during recent years:

| | 1932 | 1931 | 1930 |
|---|---|---|---|
| January ... | 163,100 | 284,400 | 455,000 |
| February .. | 176,300 | 278,000 | 479,200 |
| March .... | 181,000 | 305,000 | 515,500 |
| April ..... | 178,000 | 310,400 | 507,400 |
| May ..... | 168,000 | 306,400 | 479,800 |
| June ..... | *187,000 | 307,500 | 459,000 |
| July ..... | 201,000 | 299,700 | 457,000 |
| August .... | .... | 273,000 | 401,000 |
| September.. | .... | 260,400 | 360,000 |
| October ... | .... | 235,000 | 339,300 |
| November.. | .... | 183,000 | 283,000 |
| December... | .... | 151,300 | 276,800 |

*Revised.

# IN 7 YEARS CHRYSLER PAID 35% OF NET PROFITS IN TAXES

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Corporation has a twofold interest in the taxes imposed upon the automobile industry. First, to the extent that taxes restrict the buying of automobiles generally, this company's sales, which in the first quarter of this year were almost 15 per cent. of all automobiles sold at retail in the United States, are likewise restricted. Second, to the extent that Chrysler Corporation itself pays taxes, the net profits available for dividends are also affected.

"Taxes paid by Chrysler corporation in the last seven years amounted to 35 per cent. of the corporation's net profits for the period and to more than half as much as the dividends paid to the stockholders.

"In this period the corporation's net profits totaled approximately $106,000,000; dividends paid to stockholders totaled approximately $62,000,000; taxes paid directly by the corporation amounted to nearly $36,000,000.

"Last year alone the corporation paid almost twice as much in taxes as it earned in net profits. Its tax bill amounted to almost two-thirds as much as it paid out in dividends.

"In the year 1930 the corporation paid out twelve times as much in taxes as it earned in net profits. Its taxes amounted to one-quarter of what it paid in dividends."

Mr. Chrysler said that prior to the enactment of the new taxes automobiles were already taxed by state and local governments $1,000,000,000 a year, and that with the new levies almost one-quarter of the revenue needed to meet the Federal deficit would be raised from those who use automobiles.

### COMMODITY PRICE LEVEL RISES ½ %

**Washington,** July 1.—For the first time in weeks the level of commodity prices rose when an advance of one-half of 1 per cent. was registered in the week closed June 25, according to information supplied June 30 by the Bureau of Labor Statistics, Department of Labor. The gain, it was pointed out orally, may have been due at least in part to the addition of taxes to prices under the new revenue law.

## FINANCIAL NEWS

### TEXAS OIL

**Houston, Tex.,** July 1.—The Texas Railroad Commission yesterday fixed the allowable production of the East Texas oil field at fifty barrels a day for each well from July 1 to July 15, eliminating the field allowable of 325,000 barrels daily, according to reports from Austin. The ruling is expected here to increase the field's production, which had been limited to 325,000 barrels daily.

After July 15 it is planned to restrict the field's output again to 325,000 barrels daily, with production for each well adjusted every fifteen days until September 1, so that total output will not exceed the daily allowable. A few days ago the commission placed allowable output at fifty-one barrels daily for each well, but this order has been rescinded.

### DARBY PETROLEUM

**New York,** July 1.—At the annual meeting of the Darby Petroleum Company, E. L. Shea, vice-president of the Tide Water Associated Oil Company, was elected a director to succeed M. P. Williams, also formerly conected with Tidewater Oil. Other retiring directors were re-elected.

### DEVONIAN OIL

**New York,** July 1.—Devonian Oil resumed payment on the $10 par common stock by declaring a 10 cent distribution, payable July 20 to stock of record July 1. The last previous payment, 15 cents, was made January 2, 1931.

### PITTSBURGH STEEL

**Pittsburgh,** July 1. — Pittsburgh Steel Foundry omitted the quarterly dividend of $1.25 a share on the 5 per cent. cumulative preferred stock due at this time.

### ILSEDER STEEL

**New York,** July 1.—Ilseder Steel Corporation, year ended December 31: Net loss after depreciation, taxes, interest, cost of shutdown and other charges, $2,976,716, against net income of $1,007 in preceding year.

### RUBBER STATUS IMPROVED

**Washington,** July 1.—Commerce Department states that "possibility of approaching restoration of a more normal balance between world supply and demand for rubber is indicated in recent reports."

# NEW YORK STATE MAY PASSENGER CAR SALES GAIN OVER APRIL

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3,200, against 518 in the same month last year.

Folowing are the sales totals of the various cars in New York state for May, 1932, and the same month in 1931:

| | 1932 | 1931 |
|---|---|---|
| Auburn | 135 | 1,037 |
| Cord | 9 | 36 |
| Chrysler | 612 | 1,398 |
| De Soto | 530 | 460 |
| Dodge | 448 | 739 |
| Plymouth | 3,200 | 518 |
| Ford | 2,551 | 8,033 |
| Lincoln | 88 | 124 |
| Buick | 1,423 | 1,929 |
| Cadillac | 210 | 312 |
| Chevrolet | 5,790 | 8,617 |
| La Salle | 71 | 207 |
| Oldsmobile | 637 | 1,052 |
| Pontiac | 943 | 1,595 |
| Essex | 448 | 883 |
| Hudson | 214 | 330 |
| Pierce-Arrow | 88 | 135 |
| Rockne | 296 | * |
| Studebaker | 639 | 866 |
| Willys-Overland | 447 | 754 |
| Willys-Knight | 91 | 142 |
| De Vaux | 10 | 61 |
| Franklin | 41 | 101 |
| Graham | 209 | 323 |
| Hupmobile | 223 | 431 |
| Marmon | 24 | 91 |
| Nash | 579 | 935 |
| Packard | 309 | 344 |
| Reo | 109 | 110 |
| Miscellaneous | 50 | 151 |
| Total | 20,424 | 31,714 |

*Not in production.

# FAULTY DISTRIBUTION WEAKNESS OF AMERICAN BUSINESS, SAYS MOONEY

(Continued from Page 1)

for its members," he stated. "Unemployment insurance, health and accident insurence, and old-age pensions may seem to threaten industry with undue burdens of cost, but if industry does not accept a greater responsibility in providing solutions for the problems related to economic security, then political and labor leaders will. The costs will be far greater."

# NASH OFFERS NEW AIRWHEEL TIRES ON TWO SERIES

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sure of but eighteen to twenty pounds of air.

The new Nash tire equipment also adds to the attractiveness of Standard Eight and Big Six appearance. The special wheels are equipped with sturdy wood spokes, massive chromium and enamel plated hubs and heavy rims.

# CREEGER HEADS BOSTON DE SOTO

(Continued from Page 1)

mobile business, having served in executive capacities with many large automobile factory organizations. His experience also embraces a successful career in the retail side of the business. He has been sales manager, general manager and later distributor for several well known manufacturers.

His assignment to the Boston district, Mr. Peed explained, is in line with the De Soto program to serve more adequately the expanding market for De Soto cars in New England.

### MONTANA TRUCK LAW HELD INVALID

**Helena, Mont.,** July 1.—Provisions of the 1931 Montana law regulating motor carriers which require a private contract carrier to obtain a certificate of public convenience and necessity is invalid, the Montana Supreme Court has ruled in a decision just handed down. Such a requirement is held to contravene the Fourteenth Amendment to the Federal Constitution.

# SPARKS from DETROIT

Plymouth's Birthday

* * *

Using a Pulmotor

* * *

Advertising Art

* * *

Hibernation or Prevarication

* * *

*Chris Sinsabaugh—Detroit Editor*

PLYMOUTH has a birthday next Wednesday. That day a year ago marked the debut of not only the present line, but floating power also. In the year that followed floating power apparently has earned its niche in the industry's Hall of Fame. Citroen's adoption of it gives it an international standing.

No wonder Walter Chrysler is so filled with paternal pride that he is sending a letter to his entire distributor organization, reminding the marketeers that next Wednesday is a red-letter day, when each should nibble the birthday cake and broadcast the success of the new Plymouth and its ally, floating power.

* * *

ONE CAN WELL PARDON Walter Chrysler enumerating the high spots of the year so far as Plymouth is concerned. As for instance:

"In the twelve months ended June 30, 1932, Plymouth shipments will have totaled 150,000 cars. This is approximately three times as many as were shipped in the preceding twelve months. In May of this year shipments were nearly ten times what they were last May.

"In the first four months of this year (the latest for which complete registration figures are available) Plymouth sales to the public were two and a half times the sales in the corresponding period of 1931. In April alone Plymouth sold more than three times its sales in April last year."

* * *

AS TO HOW the public's acceptance of the Plymouth improved the Chrysler Motors Corporation position in the industry, the chairman of the board says:

"In 1931 the total Chrysler Motors' sales represented 12 per cent. of all cars sold at retail in the United States, as against 8.5 per cent. in 1930."

* * *

A WIND-BLOWN STRAW which shows that far-seeing concerns in the automobile industry are looking to advertising as the business pulmotor is the announcement made by Hal Trump of the Fred M. Randall agency that he has taken on two new clients. One is the Gear Grinding Machine Company of Detroit, which makes the Detroit tandem unit for Chevrolet and Ford, and the other is the Machined Auto Parts Company, also of this city, which makes electrical accessories, including the speedway coil.

* * *

THAT PART OF MY PUBLIC which includes the advertising men perhaps will be interested to know that the eleventh annual exhibition of Advertising Art is now open here at the Detroit Institute of Art and will continue through July. It is being held under the auspices of the Detroit Art Directors Club, and there are 197 entries.

Among the exhibits are originals of art used in recent automobile advertising by Joseph Alworthy and Roy Spreler for Buick, Leslie Saalburg and Robert Riggs for Ford, Jefferson Machamer and Otis Shepherd for Chevrolet, Robert Fawcett and Leon Benigni for Cadillac, John Atherton and C. Peter Helck for Fisher Body and John Atherton and J. W. Williamson for Fleetwood Body.

* * *

THIS IS GOOD ENOUGH for Ripley. It comes to Dodge from its dealer, the C. F. Kylling Company of Marysville, Cal. It's a story told by a satisfied customer, George Mosteca, a mine owner.

Last November Mosteca was caught in a blizzard and forced to abandon his Dodge, but in February he started out to salvage it. It was buried under a mountain of snow, but by using a sounding rod he located it nine feet down. He dug down and found it. All the tires were flat and snow packed solidly around the engine, but Mosteca says he cranked her and the motor started. The only damage done was a small hole in the top caused by the sounding rod.

Back on the road again he was picked up by the California Highway Patrol because he had 1931 license tags.

# Retail Salesmen—This Is Your Page

**This department is devoted to the interests of the retail sales division of the industry. Salesmen, this is your department. Automotive Daily News wants you to get something from this department that will help you in your work on the firing line. It wants you to pass on your own experiences, successes, failures to help your brother salesmen. Send in your story in the form of a letter, or even a postal card, and let us get it ready for publication. Your achievement or your mistake may help another salesman to make sales or avoid errors that cost you commissions.**

**Dealers read this page. Give us the benefit of your reactions on these problems that affect the work of your salesmen, the men on the firing line, the men who bring home the bacon or don't.**

## How Many Lamp Bulbs Are You Going to Sell?

**With local police departments waging war on "one-eyed" cars, a chance is presented to the salesman in the service department to sell replacement bulbs. This idea is offered by the Purol Globe, which adds a few interesting figures from the incandescent lamp division of General Electric indicating how comprehensive a market this is. Figured on a total motor vehicle registration of 26,000,000 units, allowing three bulbs per owner a year, which is the G. E. estimate, we get 78,000,000 bulbs to be bought. How should the service department salesman go after this tidy bit of business?**

The amount of lamp replacement business you do depends upon the manner in which you try to sell. If you merely keep a stock of lamps in your station and wait for drivers to ask for them the chances are that your sales will amount to very little. But if you take the trouble to really sell lamps you can increase your income materially without much effort.

One dealer who has been extremely successful in selling lamps told how he did it. He makes a practice of wiping off headlight lenses whenever a car comes into his station. When he has wiped the glass he asks the driver to turn the lights on in order to see if the lens is clean. If one of the lights is burned out the station operator sees it immediately and suggests a replacement bulb. This man is giving two services at one time. He is cleaning headlight lenses and he is checking the bulbs. The complete operation takes less than a minute. Have you a minute to make money?

Automobile lamps are necessities. While many motorists will go without a great number of accessories, they are forced by law to keep their entire lighting system in good condition. The law requires, and safety demands, that every car be equipped with sufficient light for night driving. The most logical place for motorists to look for replacement bulbs is in the service station.

The stock required in service stations is not large, according to this company. A stock of 90 bulbs, selling at a list price of $17, is sufficient for the ordinary station. This stock, they say, should turn over five to ten times a year.

Figures worked out by the manufacturers show that a service station selling 10,000 gallons of gasoline a month service , about 222 regular customers. Assuming that each customer buys about a dollar's worth of lamps each year, a 10,000 gallon station should sell $222 worth of bulbs, or about $18.50 per month. This amount may be increased by aggressive selling methods. If you couple your lamp selling efforts with battery service you should be able to realize a nice profit from the sale of bulbs.

Tests prove that more lamps are sold during the daytime than at night, if the station salesman reminds motorists to buy lamps. Cars at the drain pit or grease rack are for the time being in the hands of attendants. The switch can be turned on and all lights checked while the car is still being worked on. Burned out lamps should be called to the attention of the owner with the suggestion that faulty bulbs be renewed.

To go along with a stock of bulbs, lamp manufacturers furnish dealers with a cardboard chart showing how to adjust headlights and another one which serves as a guide to proper lamp installation on all cars. These, together with other sales aids, such as pamphlets and window displays, are available through your local representative.

## DETROIT SCHEDULES DEPEND ON SALES

(Continued from Page 1)

to its holding up to June. Without mentioning any individual cases, it would seem as if there will be a marked drop. It is thought even the low-priced division, which of late has been carrying the heavy load, senses a decided slump. On the other hand, there are a couple of companies which at this writing expect to better June.

Another reason for the belief that July will drop is the fact that we are coming into the so-called inventory season, which often means shutting down the plant to get ready for the next-season models. Undoubtedly there will be several plants in this category.

## TEAM WORK BETWEEN BOSS AND SALESMAN GETS RESULTS

**Good team work between the salesman and sales manager in handling a hesitant customer often saves a sale, in the opinion of Louis Bettigole, sales manager for the Capitol Chevrolet Company, 491 Farmington Ave., Hartford, Conn.**

"When a salesman finds himself in a tight place," Mr. Bettigole said, "he brings the customer to my office and explains the stumbling block. It is my job to stand up, meet the customer and dominate the situation. If I don't manifest complete confidence and even a somewhat dominating attitude, the sale may be lost.

"With good humor, but seriously, the point on which the salesman was 'stuck' is gone over. During the discussion I study the customer carefully. After doing my best to erase the misunderstanding I find an excuse to leave the office suddenly, and give the salesman another opportunity to close the transaction.

"Before leaving, however, I place the order blank near the customer's hand and roll a pencil toward him. This action must appear to be accidental, otherwise the effect is lost. It is simply employing elementary sales psychology.

"A few minutes later I return and either get the order or arrange for further consultaion in the usual manner. The break in the interview caused by my departure allows the salesman to pick up the selling threads where he dropped them and in many cases convince the customer.

"Our salesmen are trained to work along these lines and it has proved eminently successful. Every salesman who joins our staff must go through a one-week course covering all points of salesmanship and an extensive study of the product.

"After completing the course, the salesman must 'sell me a car' before he is fully qualified. After he has convinced me that I should buy a Chevrolet, overcoming all my arguments, he becomes a 'regular.'

"A real salesman," concluded Mr. Bettigole, "will travel far to learn a new point in salesmanship. If he is not willing to go to great lengths to increase his knowledge of the subject, he hasn't the right stuff in him."

## Do You Suffer From D. P.*

***D. P.—Deadly pause.**

**That deadly pause which usually follows the initial sales presentation to a new prospect provides an excellent opportunity for the salesman to learn the prospect's hobbies or business interests and play up to them, says H. W. L. Heil, salesman for the General Auto Sales Company, Dodge and Plymouth dealership of 414 Hudson St., Hartford, Conn., of which Aaron G. Cohen is proprietor.**

"If you succeed in finding out what subject is of paramount interest to your customer," Mr. Heil said, "you can gradually drift away from the sales talk and converse on the prospect's hobby. This policy builds the interest and confidence of the prospect and establishes a certain intimacy which in turn creates a comfortable atmosphere for both.

"After talking about the customer's interests for a while, you can go back to the sales presentation, usually with better results. I have found this method extremely successful.

"I do not believe in showing too many cars to any one prospect, as it may cause him to waver between one and the other. If his attention can be kept upon one model, after you have determined the type of car and price class he is interested in, the presentation is much more effective.

"If there is a 'woman in the case I always try to concentrate upon her. The woman not only will notice small things which a man would overlook, but she is usually the one whose word is final as to the choice.

"It requires intense application and endeavor these days to sell cars, notably because we are, so to speak, 'the goat' for the small dealers, gas stations and the like, who handle the same line.

"The shoppers come to us, go through the routine of prices, model, performance, etc., with demonstrations and considerable time spent by the sales force, and then go out to a small dealer. The small dealer sells them the car, probably at a cut price on the new model and greater allowance for the trade-in. His overhead is low and all the missionary work is done by us, so that all the small dealer has to do is cut prices and he gets the sale."

**CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS**

CHEVROLET

FIRST IN SALES

BECAUSE IT'S

FIRST IN VALUE

It was true in 1931—it is true for the first six months of 1932. The Chevrolet Six is America's most popular car. Value alone made that record possible, for this was the period when buyers bought more closely than ever before, with a shrewder eye to quality. And since April 1st, the Chevrolet Six is an even greater value. It has the same big, roomy Fisher bodies styled and appointed as smartly as expensive custom cars—and is the only car of lowest price to provide them. It provides the same wonderful driving combination of Syncro-Mesh and Free Wheeling—exclusive to Chevrolet in its price class. And it has a proved six-cylinder engine—which engineers and motorists alike are coming to recognize as the ideal type of engine for a low-priced car. Yet this smooth, economical, quality car now sells at reduced prices—so low that many popular models are priced below the similar models of any other multi-cylinder car. As a result, Chevrolet dealers today are in a better position than ever to retain their present leadership in sales over the entire range of automobiles.

CHEVROLET MOTOR COMPANY, DETROIT, MICHIGAN, *Division of General Motors*

CHEVROLET

PRICED AS LOW AS $445 F. O. B. FLINT, MICH.

# Automotive Daily News

"Of, By and For the Entire Automotive Industry"

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## *Incomes Are Down but So Are Prices*

WE hear a great deal in these parlous days of the way incomes have shrunk. This man who used to make $25,000 a year is down to $6,000 and wondering how long that is going to last. Here we have a former millionaire whose income has decreased so that he has had to discharge all but a miserable dozen or so of his former servants and employees. On the other side is a mechanic who once made $12 a day and who now has to take $6 for eight hours' work when he can get it, which is by no means every day.

All this is quite true. Individual incomes have shrunk, many people formerly earners are out of work, our national buying power has decreased profoundly.

BUT, if national income has decreased, so have prices. The dollar today will buy more than at any other time in history as we who are living can remember it. We have not seen exact figures on the parity in decrease between income and costs, but we believe they have kept fairly accurate step with each other.

There are still some 40,000,000 Americans earning a living; not quite so good a living, to be sure, but none the less money enough to keep them from want. These people probably can buy today just as easily as they ever could, but the paralyzing fear of something worse to follow keeps them from spending as usual.

This is something that every dealeer and every salesman should keep always in mind. It is a major point in selling at the present moment. The average man today is just as well able to pay 60 cents for any given product as he was to pay a dollar for it in 1928 or 1929. This fact may profitably be pointed out to the prospective customer.

And the obvious way of pointing the moral of this situation is through advertising. The manufacturer or merchant who expects to deliver his message in any other way is making a mistake. People will not realize that diminshed incomes will go just as far today as larger ones did in 1929 unless you tell them about it. The only way to tell them is by judicious advertising.

## *Is the Motor Car an Animal?*

PROBABLY most Americans believe that in their legislative bodies, state and national, they have a monopoly on idiotic lawmakers. We do very well in that respect, but it is a relief once in a while to find that other countries are not entirely exempt.

An indication of this comes to us in reports of a bill now before the august House of Lords of the British Parliament. The measure in question would entitle a person to recover damages from the owner or driver of a motor vehicle which had caused him injury without proof of misconduct or negligence on the part of the operator of the car or truck. The bill is based on an old law passed by the House of Lords many years ago that a person bringing onto the highway an animal or thing which is dangerous or likely to cause injury if it gets out of control is liable for the consequences apart from negligence on his part.

This plainly makes the motor vehicle a dangerous animal. We do have dangerous animals in motor vehicles in this country, but we have not yet reached a place where we define even by inference the motor car or truck as a dangerous animal. The bill has been called up for a second reading and may possibly pass. We trust Congress does not hear of this or it may use it as a basis of further taxation on motor vehicles.

Some of the wiser heads in the House of Lords have called attention to the injustice of reversing the law of accidents in so violent a manner. Perhaps wisdom may prevail over prejudice, but for the moment we rejoice in the fact that our Congress has a rival.

# A. D. N. Offers Dealers $100 for Letter

### This Newspaper Will Pay $100 for Best Letter of Month, $5 for Best Letter Each Day. Read Offer Below

IT has been decided to broaden a little the rules of the prize contest which Automotive Daily News is now running. Instead of offering prizes for letters from dealers who are doing more business than they did last year, we now include all dealers, even though they may not be exceeding the profits they earned in 1931.

Therefore, Automotive Daily News offers a monthly prize of $100 for the best letter from any dealer, telling how he has managed to keep his business out of the red this year, or giving the most constructive idea on how to increase profits, even though his own business may not be exceeding that of 1931. The plan is to pass on to other dealers methods, systems or ideas that will help them get more out of this reluctant market. The editors of Automotive Daily News will be the judges of which letter is best, and prizes will be awarded by them, their judgment being final.

Furthermore, Automotive Daily News will publish every day the best letter received that day and will pay the dealer writing it $5.

Get busy, you dealers, and grab yourselves $100 or a consolation $5, by passing on to your fellows the recipe that is enabling you to make money in a tough year.

## *Today's $5 Winner*

# REDUCED EXPENSES, USED CAR MERCHANDISING AND SERVICE DRIVE HELP THIS DEALER

By M. L. OLSON,
**Bogda Chevrolet Company, South Bend, Indiana**

By broadening the rules of your prize contest, we feel that we can now qualify, as it is true that our sales are less in 1932 than in 1931.

Yet in 1932, we are pleased to state that the good old black net profit figures are somewhat larger than in 1930 or 1931.

We attribute this fact to three things which seem the most important in this period of readjustment. The first item is that we have now reduced our fixed expenses to such a level that our fixed gross profit can nearly absorb them.

The next change of policy is the merchandising of used cars. We have cut down our trading ratio and we now look on used car sales in the terms of units instead of dollars and cents. We are not interested so much in what gross profit or loss is made on a used car, but are more interested in how to dispose of one unit from our used car inventory. In nother words, we stress on straight sales or on such tradeins that can be classified as junkers, which will then leave an opening for a trade-in on a new car.

Last, but not least, we have taken a new viewpoint on the sale of service and parts. We are doing more advertising, offering more special bargains; we have a full-time service salesman calling on all of our owners, which number 5,150 in our zone of influence; we have a service salesman selling service and accessories on our service floor, and we are paying 10 per cent. commission to our mechanics and car salesmen for all repair work brought in.

All in all, we are trying to reach such a position that in realizing a satisfactory net profit we can still pick our new car deals.

To keep our working capital in a liquid condition we are extending credit to only a very limited list of good credit risks. We are financing our larger repair jobs with finance companies when the car is not incumbered, we have practically eliminated side notes on car deals, and carry very little used car paper.

We wish your contest success, and, no doubt, car dealers will receive much benefit from the ideas and new methods which will be brought out in your issues.

# KNOWLEDGE IS POWER IN SALESMANSHIP

No one would dare estimate the number of sales that are lost through the failure of salesmen to answer prospects' questions accurately, intelligently and effectively.

To answer them accurately requires a complete knowledge of every feature of the cars.

To answer them intelligently calls for an understandable knowledge of the cars, plus the ability to transmit this knowledge to the prospect in terms that he will understand.

To answer them effectively means the skill with which to turn each answer into a "closing argument" on that particular feature.

For example, in describing the new slanting windshield of the new streamline series models, you might merely refer to its smart style and neglect to mention the advantages that would satisfy the prospect as to its superiority.

Impress the prospect with its great beauty, of course, but add some selling punch to your argument. Here's a suggestion:

"We believe we have the most beautiful windshield in use today. It has just the right slant and contributes greatly to the streamlining design. You will note also that it is of the one-piece, clear-vision type. There is no dividing frame up the center to obstruct your view or to hide pedestrians or cars that may be approaching intersections from the right."

You would then demonstrate its easy operation and point out the narrow windshield pillars (another safety factor) that the mechanism for the windshield cleaner is concealed and how the top of the cowl, windshield pillars, roof front and section of the roof sides are all constructed in one piece (still another safety factor).

Many salesmen make a mistake of postponing the closing of a sale until they feel the stage is all set. THE CLOSING OF A SALE RUNS RIGHT THROUGH THE SALE FROM THE TIME YOU GREET THE PROSPECT.

When you "close" the prospect on the car's beauty, performance, safety, comfort, service, economy and value as you go along, you are making the actual signing or "okaying" of the order a much simpler matter.

The better you know these new streamline series cars, the more of them you will sell. The questions and answers on this page will help you attain the necessary knowledge.—**THE WILLYS-OVERLAND STARTER.**

# HIGHWAY USERS JOIN FORCES TO FIGHT TAXATION

(Continued from Page 1)

$1,000,000,000 annually in special taxes assessed against vehicle users.

"To the extent that there is economic justification for taxes upon users in return for highway development, no one can find much fault with them," said Mr. Sloan. "But when we see the vehicle becoming an instrument for general taxes of all sorts far beyond those which the user should pay, then a halt must be called.

"Otherwise the whole structure of our highway transportation will be menaced and the individual who uses the road will find himself saddled with operating costs which will add materially to the cost of movement and of goods."

Succeeding speakers noted that gasoline taxes now amount to from 110 to 125 per cent. of the wholesale cost of the product, an evident immediate effect of serious dimensions being an increasing tax evasion and "bootlegging" of the commodity.

Attention was also called to the fact that in Southern and Southeastern states gasoline and license taxes now paid annually by trucks of 3½ tons amount to from $1,000 to $2,000 per vehicle, with the figure frequently running higher when the operation is by common carrier.

Evidence of a widespread misconception of the facts of motor transportation can be found on all sides, according to one speaker. In his judgment "more courtesy on the part of motor vehicle drivers and a better recognition of safety principles in operation is essential.

"The public, too, frequently does not understand the necessary function which the truck performs as it delivers milk, bread and the other necessities or comforts of life.

"When the public knows that these vehicle users are more than paying their share of the cost of the roads which they use in common with all others, there will be less disposition on the part of legislators to make the user carry the costs of government in his vehicle."

## COMING EVENTS

**JULY**

8—France. Grand Prix Automobile Race.
5- 9—Southampton, England. Commercial Car Show.
9-10—Belgium. Grand Prix Automobile Race.
17—Germany. Grand Prix Automobile Race.
20-22—Llandrindod, Wales. Commercial Car Show.

**OCTOBER**

3- 7—Buffalo, N. Y. National Metal Congress. Sponsored by American Society for Steel Treating, with cooperation of American Society of Mechanical Engineers, Institute of Metals and Iron and Steel Divisions of American Institute of Mining and Metallurgical Engineers, American Welding Society, Wire Association.
3- 7—Washington, D. C. National Safety Council, meeting.
3- 7—Buffalo, N. Y. National Metal Exposition, 174th Regiment Armory. W. H. Eisenman, 7016 Euclid Ave., Cleveland, director
13-22—London, England. Olympia Show.

# Production--Engineering--Factory

## A Correlation of Some Mechanical and Magnetic Properties of 1.21% Carbon Tool Steel

(THIRD INSTALLMENT)

By J. V. Emmons, Metallurgist, Cleveland Twist Drill Co., Cleveland, O., and R. L. Sanford, Chief Magnetic Section, United States Bureau of Standards, Washington, D. C.

The Rockwell hardness as shown in Fig. 6 shows a slight increase to a maximum at 200° F. (95° C.). A similar increase in hardness is produced by aging at room temperature for about six months. After passing the maximum at 200° F. (95° C.), the hardness decreases moderately at 300° F. (150° C.) and more rapidly with higher tempering temperatures.

When the ultimate torque is plotted against hardening temperatures as in Fig. 7, it is seen that the effect of the hardening temperatures upon the strength is much more pronounced for the lower tempering temperatures than it is for those of 400° F. (205° C.) and higher. At the lower tempering temperatures the strength decreases greatly with an increase in hardening temperature, while at the higher tempering temperatures the strength slightly increases.

When the plastic deformation is plotted against the hardening temperatures (Fig. 8) it is seen that the effect of the hardening temperatures upon the plasticity is small up to a tempering temperature of 300° F. (150° C.). With higher tempering temperatures, the effect of the variation in hardening temperatures becomes increasingly more pronounced until at 700° F. (370° C.) increasing hardening temperatures produce an enormous rise in the plasticity.

When the Rockwell hardness is similarly plotted against variable hardening temperatures as shown in Fig. 9, the effect of changes in the hardening temperatures is seen to be relatively small. It is observed that with no tempering, the lowest hardening temperatures produce the highest hardness, and the highest hardening temperatures the lowest hardness. With a 500° F. (260° C.) tempering temperature, this curve is reversed with the lowest hardness when hardened at 1,400° F. (760° C.), and the highest when hardened at 1,600° F. (870° C.).

**Correlation of the Mechanical Properties:** The most casual comparison of the curves for strength, plasticity and hardness shows that each property has its own peculiar behavior, and that general conclusions are difficult to draw.

A study of Figs. 4 and 6 shows that the effect of tempering at temperatures above 500° F. (260° C.) is to decrease the strength and hardness while increasing the plasticity. Tempering at temperatures below 500° F. (260° C.) has a more complicated effect. It seems conclusive that the effect of tempering up to 300 to 400° F. (150 to 205° C.) is to increase both the strength and plasticity. At a temperature of 500° F. (260° C.) strength, plasticity and hardness all decrease.

A study of Figs. 7 to 9 shows two interesting peculiarities. At temperatures of 300° F. (150° C.) and below, hardening at temperatures of 1,550° F. (840° C.) and 1,600° F. (870° C.) produces a sharp falling off of the strength, but has only slight effect on the plasticity and hardness. At tempering temperatures of 400° F. (205° C.) and higher, increasing hardening temperatures are accompanied by a general increase in strength, plasticity and hardness. This increase is particularly noticeable at the 1,600° F. (870° C.) hardening temperature.

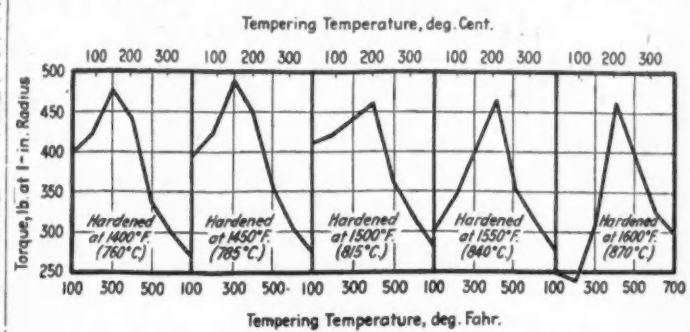



FIG. 4.—Relation of Torque to Tempering Temperatures.

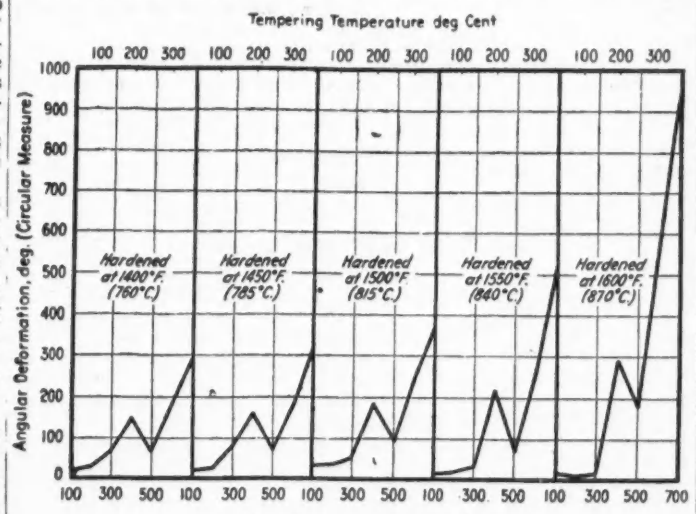



FIG. 5.—Relation of Plastic Deformation to Tempering Temperatures.

**Microstructure:** Figs. 10 (a), (b) and (c) are micrographs showing the effect of the several hardening temperatures upon the structure before drawing. The structure consists of a matrix of martensite with numerous masses of iron carbide or cementite. The martensite has the distorted or vermiform shape usually produced by heat treatment in this range.

Increasing the hardening temperatures has the general effect of increasing the size of the martensite masses and decreasing the number of carbides.

Figs. 11 (a), (b) and (c) are micrographs showing the effect of increasing tempering temperatures upon the structure of specimens hardening at 1,500° F. (815° C.). The changes produced by tempering are solely in the matrix. In Fig. 10 (a), which shows the structure of the material when hardened at 1,500° F. (815° C.), but not tempered, the martensite occupies nearly the whole of the intercarbide area. With increasing tempering temperature, the martensite "worms" appear to break down at the outside edges first, causing a gradual shrinkage in size. This shrinkage of the martensite is accompanied by a concentration of the submicroscopic carbide in the remaining martensite area. This concentration appears to maintain the stability of the martensite. As the tempering temperature is raised, the carbide available in the martensite is able to stabilize smaller and

(Continued on Page 8)

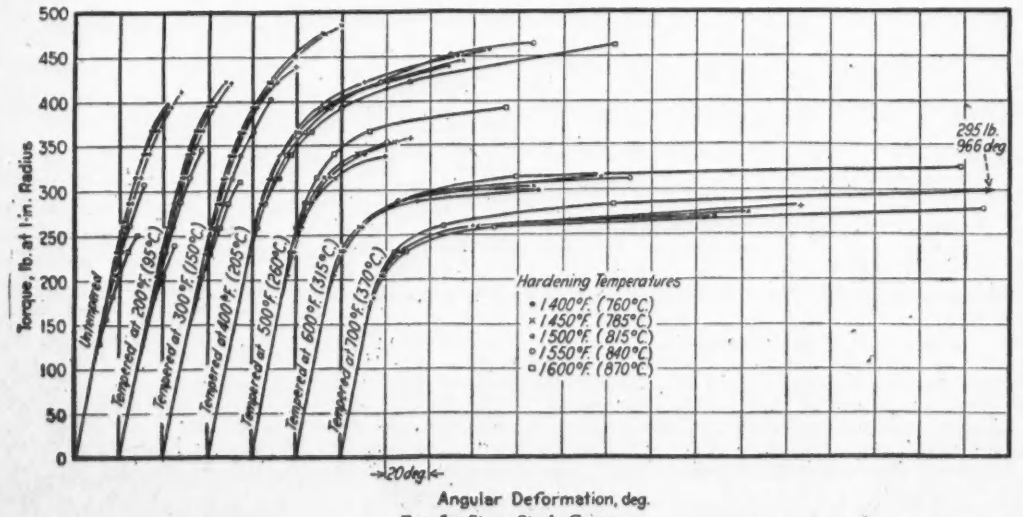
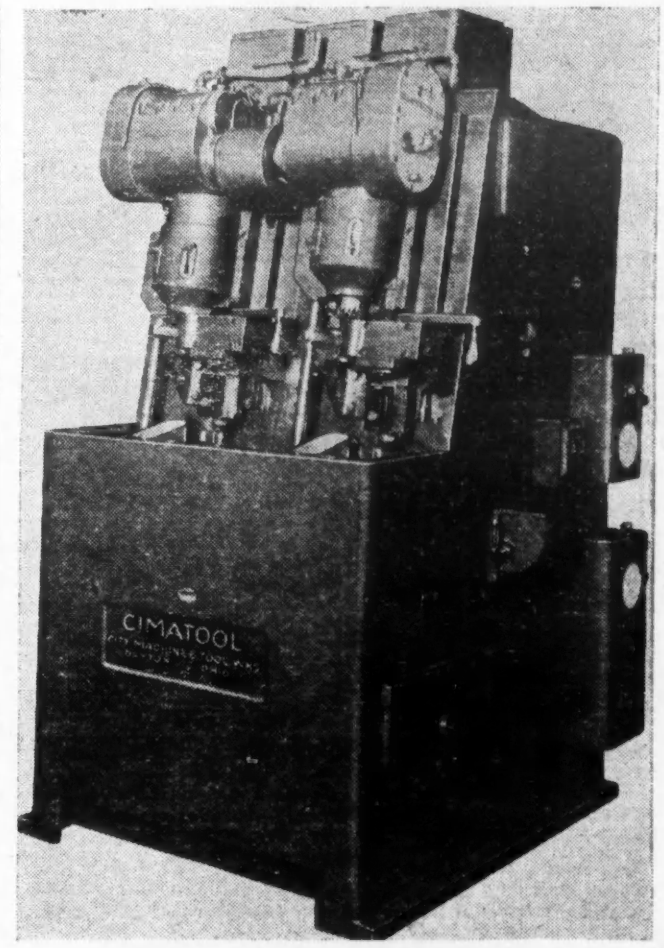



FIG. 3.—Stress-Strain Curves.

## Special Burring Machine

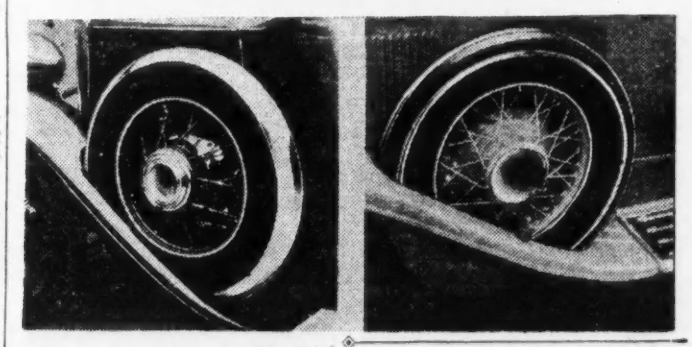



**City Machine and Tool Works has recently completed a large special burring machine for an automotive manufacturer. This machine removes the burr thrown up in hobbing the bevel gear on axle shafts. The machine is of rugged construction, of the two-spindle type, each spindle being independent in operation of the other, allowing loading at one station while the other station is in operation.**

Although production time is regulated by feed and would vary somewhat with the amount of material to be removed, when utilized simply as a burring operation, rather than a cutting operation, and the parts held to such tolerances, the machine is capable of a six-second cycle.

The machine is equipped with four motors, operating spindles, cam feed mechanism, and coolant and lubricating pumps, self-oiling system being standard equipment. One of the minor features worth mentioning is the hand clamping of the part, which, due to a mechanical arrangement, provides for a short travel of the clamping handle, and at the same time assures a positive non-slip action. Although quick and effective in operation, the clamp is very simple in construction, to assure trouble-free, daily performance.

## Tire Covers and Bands



**The Herron-Zimmers Moulding Company is offering a new line of Her-Zim tire cover sets and bands. The claims made for these sets are their beauty, low price and exceptional ease of mounting or taking off. The walls are made of fabric, with stainless steel beading, and are so constructed that they will not wrinkle and the side walls will not dent.**

The drum side walls cover the entire wheel with the exception of the hub cap and may be had in black patent leather, khaki, or finished with a black pyroxylin for ducoing. The chrome type tire bands may be purchased separately. The molded type tire band is similar to the chrome type, except that it has a snap-on chrome molding on top and a chrome band on the outside edge, the remainder being either a black enameled or prime finish.

## MOTOR PRODUCTION ACTIVITY

By RAY B. PRESCOTT
Marketing Counselor

**The production of low-priced cars showed a gain during the past week, while production of many other cars fell off a bit. However, the total production registered a small increase of about 6 per cent. over the previous week.**

It seems highly improbable though that production of low priced cars will long be able to sustain total production at its present level, as the seasonal decline from July on is very heavy. Sales from July to the end of the year drop off rapidly and even with Ford increasing his production and sales, a decline may be expected.

# BROADWELL RESIGNS TODAY AS FISK TIRE OPERATING EXECUTIVE

(Continued from Page 1)

partment and I am, therefore, resigning as of July 1.

"I believe the Fisk Company, properly organized, has a very important place in the industry, and I should be glad to assist in the work for a proper reorganization, which would be of special benefit to this community."

# DODGE HOLDS TRUCK SHOW IN NEW YORK

**New York, July 1.—Over 125 of the leading New York city truck buyers attended a luncheon and special showing of the complete line of Dodge Brothers' trucks at the headquarters of Dodge Motors New York, Inc., 125 West End Ave., on Wednesday, June 29.**

The luncheon and special exhibit were staged by Dodge Motors New York, Inc., in conjunction with De Lisser Motors, Inc., recently appointed Dodge and Plymouth dealers in Manhattan.

In addition to William L. Colt, president of Dodge Motors New York, Inc., and Horace E. De Lisser, president of De Lisser Motors, Inc., among those present were Col. A. C. Downey, vice-president of Dodge Brothers Corporation; J. D. Burke, director of truck sales Dodge Brothers Corporation; William J. Case, regional manager Dodge Brothers Corporation, and J. R. Lakin, regional supervisor for Plymouth Motor Corporation.

Every type and model in the entire line of Dodge Brothers' trucks, ranging from the one-half ton light delivery to the heavy duty trucks built for gross capacities up to 7½ tons, with vocational body equipment, including coal delivery, tractor dumps, platform, stake and rack and panel bodies, were included in the display.

In commenting on the exhibit, William L. Colt, president of Dodge Motors New York, Inc., said: "Dodge Brothers first entered the truck and commercial car field in 1919, and since that time they have made an enviable reputation for dependable and economical service, which is reflected in the ever increasing demand for Dodge Brothers' trucks—a demand which has been responsible for the increase in our number of models to completely cover every type of delivery and trucking requirement."

### CONN. MOVES TO STOP BUS CROWDING EVIL

**Hartford, Conn.,** July 1.—State Commissioner of Motor Vehicles Robbins B. Stoeckel has served notice on thirty-six interstate bus lines operating through Connecticut that drastic supervision will be exercised to insure that there shall be no overcrowding of buses on Connecticut highways.

The Home Hotel of New York

Homelike in service, appointments and location . . . away from noise and congestion, yet but a few minutes from Times Square . . . garage facilities for tourists.

Home folks will like this hotel

HOTEL BRETTON HALL

BROADWAY at 86th STREET

NEW YORK

# MAJOR SPECIFICATIONS AND MECHANICAL DETAILS

| Make and Model | Weight—5-P. Sedan | Wheel Base | Engine Make | Thermostat Used | Valve Arrangement | Cylinders | Bore and Stroke | Piston Disp. | Compression Ratio | Tax H. P. | Brake, H.P. and Peak R. P. M. | Pist. Make or Material | No. Main Br. | Oil Purifier | Fuel Cleaner | Carburetor | Air Cleaner |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Auburn 8-100 | 3675 | 127-136 | Lyc | Dole | L | 8 | 3 x4¾ | 268.6 | 5.26 | 28.8 | 100@3400 | *Alum | 5 | Pur | No | Str | AC |
| Auburn 12-160 | 4465 | 133 | Lyc | Dole | HO | 12 | 3⅛x4¼ | 391.1 | 5.50 | 46.8 | 160@3400 | *Alum | 4 | Pur | Ste | Str | AC |
| Austin | §1150 | 75 | Own | No | L | 4 | 2.2x3 | 45.6 | 5.10 | 7.8 | 13@3000 | Alum | 2 | No | No | Til | No |
| Buick 32-50 | 3450 | 114 | Own | Bish-Bab | O | 8 | 2⅞x4¼ | 230.4 | 5.09 | 27.61 | 82@3200 | CI | 5 | AC | AC | Mar | AC |
| Buick 32-60 | 3980 | 118 | Own | Bish-Bab | O | 8 | 3⅛x4⅝ | 272.6 | 5.03 | 30.02 | 95@3000 | CI | 5 | AC | AC | Mar | AC |
| Buick 32-80 | 4450 | 126 | Own | Bish-Bab | O | 8 | 3⅛x5 | 344.8 | 4.80 | 35.12 | 113@3200 | CI | 5 | AC | AC | Mar | AC |
| Buick 32-90 | 4565 | 134 | Own | Bish-Bab | O | 8 | 3⅛x5 | 344.8 | 4.80 | 35.12 | 113@3200 | CI | 5 | AC | AC | Mar | AC |
| Cadillac 355 B | 4885 | 134-140 | Own | Har | L | 8 | 3⅜x4⅛ | 353.0 | 5.38 | 36.4 | 115@3000 | CI | 3 | AC | AC | Own | AC |
| Cadillac 370 B | 5175 | 134-140 | Own | Har | O | 12 | 3⅛x4 | 368.0 | 5.30 | 46.9 | 135@3400 | CI | 4 | Cuno | AC | DL | AC |
| Cadillac 452 B | 5625 | 143-149 | Own | Har | O | 16 | 3 x4 | 452.0 | 5.36 | 57.5 | 165@3400 | CI | 5 | Cuno | AC | DL | AC |
| Chevrolet | 2770 | 109 | Own | No | O | 6 | 3⅛x3¾ | 194 | 5.20 | 26.3 | 60@3000 | CI | 3 | No | Yes | Car | AC |
| Chrysler 6 | 3120 | 116 | §Own | Yes | L | 6 | 3¼x4½ | 223.9 | 5.35 | 25.35 | 82@3400 | *Alum | 4 | Pur | Yes | B & B | Yes |
| Chrysler 8 | 3860 | 125 | §Own | Yes | L | 8 | 3¼x4½ | 298.6 | 5.20 | 33.80 | 100@3400 | *Alum | 5 | Pur | Yes | Str | Yes |
| Chrysler Imp. 8 | —— | 135 | §Own | Yes | L | 8 | 3½x5 | 384.8 | 5.20 | 39.20 | 125@3200 | *Alum | 9 | Pur | Yes | Str | Yes |
| Chrysler Imp. 8 cus. | —— | 146 | §Own | Yes | L | 8 | 3½x5 | 384.8 | 5.20 | 39.20 | 125@3200 | *Alum | 9 | Pur | Yes | Str | Yes |
| Cord (Fr. Wh. D.) | 4620 | 137½ | Lyc | Dole | L | 8 | 3¼x4½ | 298.6 | 5.25 | 33.8 | 115@3300 | *Alum | 5 | Pur | AC | Sch | No |
| De Soto Six | 3008 | 113 | §Own | Yes | L | 6 | 3¼x4¼ | 211.5 | 5.35 | 25.35 | 75@3400 | *Alum | 4 | Pur | Yes | B & B | Yes |
| De Vaux 6-80 | 2810 | 114 | Con | Dole | L | 6 | 3⅜x4 | 214.7 | 5.20 | 27.34 | 75@3600 | Alum | 4 | — | Yes | Til | AC |
| Dodge Six D L | 3084 | 114¼ | §Own | Yes | L | 6 | 3¼x4⅜ | 217.7 | 5.35 | 25.35 | 79@3400 | Alum | 4 | Pur | Yes | Car | Yes |
| Dodge Eight D K | 3483 | 122 | §Own | Yes | L | 8 | 3¼x4¼ | 282.1 | 5.20 | 33.80 | 90@3400 | Alum | 5 | Pur | Yes | Str | Yes |
| Essex-Gr. Su. 6 Std. | 2870 | 113 | †Own | No | L | 6 | 2⅞x4¾ | 193.0 | 5.50 | 20.7 | 70@3200 | Alum | 3 | No | Ste | Mar | AC |
| Ford A | 2357 | 106 | Own | No | L | 4 | 3⅛x4¼ | 200.5 | 4.60 | 24.03 | 50@2600 | Alum | 3 | — | — | Zen | — |
| Ford V8 | †2447 | 106 | Own | No | L | 8 | 3⅛x3⅛ | 220.0 | 5.50 | 30.0 | 65@3400 | Alum | 3 | — | — | DL | — |
| Franklin Airman | —— | 132 | †Own | Ful | O | 6 | 3½x4¾ | —— | 5.10 | —— | 100@3100 | *Alum | 7 | Pur | Yes | Str | Yes |
| Franklin V-12 | —— | 144 | †Own | Ful | O | 12 | 3¼x4 | 398.0 | 5.12 | —— | 150@3100 | *Alum | 7 | Pur | Yes | Str | Yes |
| Graham 6 (1933) | —— | 118 | Own | Yes | L | 6 | 3¼x4½ | 224.0 | 6.50 | 25.35 | 80@3400 | *Alum | 7 | No | AC | Sch | AC |
| Graham 6 | 3205 | 113 | Own | Yes | L | 6 | 3⅛x4½ | 207 | 5.45 | 23.4 | 70@3200 | *Alum | 7 | No | AC | Sch | AC |
| Graham 8 | 3665 | 123 | Own | Bish-Bab | L | 8 | 3⅛x4 | 245.4 | 6.50 | 31.25 | 90@3400 | *Alum | 5 | AC | AC | DL | AC |
| Hudson Gr. 8 Std. | 3270 | 119-126-132 | †Own | No | L | 8 | 3 x4½ | 254.1 | 5.80 | 28.8 | 101@3600 | Alum | 5 | No | Ste | Mar | AC |
| Hupmobile 216 | 3115 | 116 | Own | Bish-Bab | L | 6 | 3⅜x4¼ | 228.1 | 5.00 | 27.34 | 75@3200 | *Alum | 4 | "" | Ste | Str | AC |
| Hupmobile 222 | 3580 | 122 | Own | Bish-Bab | L | 8 | 2⅞x4⅝ | 250.7 | 5.40 | 27.61 | 93@3200 | Alum | 5 | Pur | Ste | Str | AC |
| Hupmobile 226 | 3755 | 126 | Own | Bish-Bab | L | 8 | 3⅛x4¾ | 279.9 | 5.47 | 30.10 | 103@3200 | Alum | 5 | Pur | Ste | Str | AC |
| La Salle 345 B | 4840 | 130-136 | Own | Har | L | 8 | 3⅜x4⅛ | 353.0 | 5.38 | 36.4 | 115@3000 | CI | 3 | AC | AC | Own | AC |
| Lincoln V-8 | 5430 | 136 | Own | Yes | L | 8 | 3½x5 | 384.0 | 5.23 | 39.2 | 125@2900 | Alum | 5 | No | AC | Str | AC |
| Lincoln V-12 | 5750 | 145 | Own | Yes | L | 12 | 3¼x4½ | 448.0 | 5.25 | 50.7 | 150@3400 | Alum | 7 | No | AC | Str | AC |
| Marmon 8 | 3500 | 125 | Own | Yes | L | 8 | 3¼x4⅜ | 315.2 | 5.50 | 33.8 | 125@3400 | Alum | 5 | Flo | AC | Str | AC |
| Marmon 16 | 5360 | 145 | Own | Pines | O | 16 | 3⅛x4 | 490.8 | 5.75 | 62.5 | 200@3400 | Alum | 5 | † | AC | Str | AC |
| Nash Big Six | 3200 | 116 | Own | Bish-Bab | L | 6 | 3⅛x4⅜ | 201.3 | 5.10 | 23.4 | 70@3000 | *Alum | 7 | Pur | AC | Str | AC |
| Nash Stand. Eight | 3400 | 121 | Own | Bish-Bab | L | 8 | 3 x4⅜ | 247.4 | 5.10 | 28.8 | 85@3200 | *Alum | 9 | Pur | AC | Str | AC |
| Nash Spec. Eight | 3870 | 128 | Own | Bish-Bab | O | 8 | 3⅛x4¼ | 260.8 | 5.25 | 31.2 | 100@3400 | *Alum | 9 | Pur | AC | Str | AC |
| Nash Adv. Eight | 4350 | 133 | Own | Bish-Bab | O | 8 | 3⅜x4½ | 322.0 | 5.25 | 36.4 | 125@3600 | *Alum | 9 | Pur | AC | Str | AC |
| Nash Ambas. Eight | 4510 | 142 | Own | Bish-Bab | O | 8 | 3⅜x4½ | 322.0 | 5.25 | 36.4 | 125@3600 | *Alum | 9 | Pur | AC | Str | AC |
| Oldsmobile F-32 | 3035 | 116½ | Own | No | L | 6 | 3⅛x4⅛ | 213.3 | 5.80 | 26.3 | 74@3200 | CI | 4 | AC | AC | Str | AC |
| Oldsmobile L-32 | 3165 | 116½ | Own | No | L | 8 | 3 x4¼ | 240.3 | 5.90 | 28.8 | 87@3350 | CI | 5 | AC | AC | Str | AC |
| Packard Twin Six | 5225 | 142-147 | Own | Yes | L | 12 | 3⅛x4 | 445.5 | 6.00 | 56.0 | 160@3200 | *Alum | 4 | Yes | Yes | Own | AC |
| Packard Stan. 8 | 4570 | 130-137 | Own | Yes | L | 8 | 3⅛x5 | 320.0 | 6.00 | 32.5 | 110@3200 | *Alum | 9 | Yes | Yes | Own | AC |
| Packard De L. 8 | 5045 | 142-147 | Own | Yes | L | 8 | 3½x5 | 384.8 | 6.00 | 39.2 | 135@3200 | *Alum | 9 | Yes | Yes | Own | AC |
| Packard Light 8 | 4115 | 127¼ | Own | Yes | L | 8 | 3⅛x5 | 320.0 | 6.00 | 32.50 | 110@3200 | *Alum | 9 | Yes | Yes | Own | AC |
| Pierce-Arrow 54 | 4819 | 137-142 | Own | Pines | L | 8 | 3½x4¾ | 366 | 5.05 | 39.2 | 125@3000 | *Alum | 9 | Pur | Ste | Str | AC |
| Pierce-Arrow 52 | 5080 | 142-147 | Own | Pines | L | 12 | 3⅜x4 | 429 | 5.05 | 54.6 | 150@3200 | *Alum | 7 | Pur | Ste | Str | AC |
| Pierce-Arrow 53 | 5395 | 137-142 | Own | Pines | L | 12 | 3¼x4 | 398 | 5.05 | 50.7 | 140@3200 | *Alum | 7 | Pur | Ste | Str | AC |
| Plymouth | 2875 | 112 | §Own | No | L | 4 | 3⅝x4¾ | 196.1 | 4.90 | 21.03 | 65@3200 | Alum | 3 | Yes | AC | B & B | Yes |
| Pontiac 6 | 2870 | 114 | Own | Yes | L | 6 | 3⅛x3⅞ | 200.0 | 5.10 | 26.3 | 65@3200 | CI | 3 | No | AC | Mar | Yes |
| Pontiac V-8 | 3225 | 117 | Own | Yes | H | 8 | 3⅛x3⅜ | 251.0 | 5.20 | 37.3 | 85@3200 | CI | 3 | No | AC | Mar | Yes |
| Reo Fly. Cloud "S" | 3405 | 117 | Own | Yes | L | 6 | 3⅛x5 | 230.0 | 5.30 | 23.4 | 80@3200 | Lo-Ex | 7 | Yes | Yes | Zen | Yes |
| Reo Royale Cust. | 4650 | 135 | Own | Pines | L | 8 | 3⅜x5 | 358 | 5.30 | 36.48 | 125@3300 | Alum | 9 | Han | AC | Sch | Own |
| Reo Royale | 4375 | 131 | Own | Pines | L | 8 | 3⅜x5 | 358 | 5.30 | 36.48 | 125@3300 | Alum | 9 | Han | AC | Sch | Own |
| Reo 8-25 | 4050 | 125 | Own | Yes | L | 8 | 3 x4¾ | 268.6 | 5.37 | 28.8 | 90@3300 | *Alum | 5 | Han | V S | Sch | Un |
| Rockne 6-65 | 2595 | 110 | Own | Dole | L | 6 | 3⅛x4⅛ | 189.8 | 5.00 | 23.4 | 66@3200 | CI | 4 | No | AC | Str | No |
| Rockne 6-75 | 3000 | 114 | Own | Dole | L | 6 | 3¼x4⅛ | 205.3 | 5.00 | 25.4 | 72@3200 | CI | 4 | Own | AC | Str | No |
| Studebaker 6-55 | 3170 | 117 | Own | Dole | L | 6 | 3¼x4⅜ | 230.0 | 5.00 | 25.4 | 80@3200 | CI | 4 | No | Ste | Str | No |
| Studebaker Dict. 62 | 3240 | 117 | Own | Bish-Bab | L | 8 | 3⅛x3¾ | 221.0 | 5.00 | 30.0 | 85@3200 | CI | 9 | Pur | Ste | Str | AC |
| Studebaker Com. 71 | 3545 | 125 | Own | Bish-Bab | L | 8 | 3⅛x4¼ | 250.4 | 5.20 | 30.0 | 101@3200 | *Alum | 9 | Pur | Ste | Str | AC |
| Studebaker Pres. 91 | 4260 | 135 | Own | Dole | L | 8 | 3½x4⅜ | 337.0 | 5.10 | 39.2 | 122@3200 | *Alum | 9 | Han | Ste | Str | AM |
| Stutz LAA | 4383 | 127½ | Own | No | O | 6 | 3⅜x4½ | 241.5 | 5.50 | 27.3 | 85@3150 | *Alum | 7 | Pur | AC | Zen | Un |
| Stutz SV-16 | 4885 | 134½-145 | Own | No | O | 8 | 3⅜x4½ | 322 | 5.50 | 36.4 | 113@3300 | *Alum | 9 | Pur | AC | Zen | AM |
| Stutz DV 32 | 5281 | 134½-145 | Own | Bish-Bab | O | 8 | 3⅜x4½ | 322 | 5.10 | 36.4 | 156@3900 | *Alum | 9 | Pur | Ste | Str | AC |
| Will.-Ov'land 6-90A | 2814 | 113 | Own | Yes | L | 6 | 3¼x3⅞ | 193.0 | 5.26 | 25.35 | 65@3400 | CI | 4 | No | AC | Til | Til |
| Will.-Ov'land 8-88A | 3250 | 121 | Own | Yes | L | 8 | 3⅛x4 | 245.4 | 5.26 | 31.25 | 80@3200 | CI | 5 | No | AC | Til | AC |
| Willys-Knight 66E | 3775 | 121 | Own | Yes | K | 6 | 3⅜x4¾ | 255.0 | 5.50 | 27.34 | 87@3200 | *Alum | 7 | Pur | Til | Til | AC |

# FLASH TRIMMING MACHINE

The Morton Manufacturing Company is putting on the market a new flash trimming machine of the high duty, draw cut type, designed for removing the flash produced in butt welding or flash welding of tanks and sheets.

In this machine two rams take off the flash from both sides of the work simultaneously. The upper ram is carried in a guideway, which is movable vertically, forming the base for attaching the upper clamping jaw. The vertical movement of this guideway is acuated by air cylinders and levers that give enough pressure for straightening and clamping the work. This automatically compensates for any variation in the thickness of the stock.

The rams are reciprocated by means of reversing clutches, so regulated that the machine makes one cycle and stops. The lower ram is carried in a solid guideway and is designed so that all trimmings removed from the inside of drums drop through openings and are carried either forward or back. The upper and lower housings may be rigidly locked while cuts are being made.

A number of different cutting tools are carried on these rams, which may be easily adjusted for any height. Straightening rolls are used before the cutting tools to help remove warpage due to welding or handling. The length of the stroke may be adjusted up to forty inches by means of movable tappets on a disk at the side of the machine.

The rams reverse automatically at the inner end of the stroke, the upper ram rising two inches before the reversal takes place. Thus it is easy to remove the work while the rams are returning to their outer positions, a time-saving feature.

These machines may be had in several sizes. Drives may be direct coupling or of other types to suit the service demanded.

# B. O. P. CO-ORDINATES

**Los Angeles,** July 1.—Furthering the co-ordinated operations of the Buick-Olds-Pontiac Sales Company, R. L. Meyers, regional manager, recently conducted a two-day meeting at the Biltmore Hotel with the department heads of the Los Angeles and El Paso zones and the Howard Automobile Company of Los Angeles.

G. R. Jones, zone manager, and T. M. Ray, assistant zone manager, headed the executives from the Los Angeles headquarters. J. B. Hancock, zone manager of the El Paso area, was in charge of the delegation from that territory. The Howard organization officials were headed by Harold W. Tuttle, general manager, and J. H. Browning, Howard zone manager.

# PAINT FOR METAL SURFACES

The Eastern Mabelite Corporation is putting out a paint for metal surfaces known as Mabelite. Among the qualities claimed for this product are prevention of electrolysis and corrosion. The pigment is a finely ground natural ore, which is stated to be free from acid and alkali and, being completely oxidized, is inert and chemically stable.

The paint is claimed to be especially suitable for protecting metal surfaces subject to abrasion, rust, heat, oils, alkalies, salt water and acids. The paint comes in a brown color and in cases where other colors are desired, it is stated, Mabelite may be used as a priming coat.

**CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS**

# FLY KILLERS

The Frost Electric Screen Company is now marketing screens for doors and windows of offices, factories and homes designed for the destruction of insect life before it enters the building. The secret is that the screen is electrified and insects coming into the vicinity of two parallel adjacent wires of opposite polarity are electrocuted.

The current in the screens is stepped up to a light static charge by a special type of transformer, the voltage being high enough to electrocute the insect as it comes within the vicinity of the wires, but is not strong enough to affect man or animals.

### FORD TRUCK SHOWS

**Los Angeles,** July 1.—Ford dealers throughout the Los Angeles metropolitan area are busily occupied in carrying out a national truck sales campaign with headquarters at the old Ford assembly plant, 2060 East 7th St., where all body types and truck equipment have been placed on display. Motor truck fleet operators have been invited to visit the display during the week, to inspect the equipment and drive the new commercial models of the Ford Motor Company.

# OF PRESENT AMERICAN PASSENGER CAR MODELS

| Make and Model | Front End Drive | Ignition System | Gen. and Starter | Clutch | Transmission: Make | Transmission: Speeds | Transmission: Type | Universals | Rear Axle | Ratio | Brakes | Steering Gear | Springs Rear | Spring Shackles | Chassis Lubric. | Tires |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Auburn 8-100 | Chain | Del-R | *Del-R-S | Long | D | 3 | SM-LGS-F | U | Col | *4.70 | M | Ross | S 56¾ | Own | Bijur | *17x5.50 |
| Auburn 12-160 | Link | Del-R | *Del-R-S | Long | D | 3 | SM-LGS-F | M | Col ½ | *4.08 | Bendix | Ross | S 56¾ | Own | Bijur | *17x6.00 |
| Austin | Gear | Aut-L | *Aut-L | Rock | WG | 3 | — | S | Sal ½ | 5.25 | M | Say-B | Cant | Own | Al-Z | 18x3.75 |
| Buick 32-50 | Tex | Del-R | Del-R | *Own | O | 3 | SM-Own-F | O | Own ½ | 4.60 | Own | Sag | S 56 | Own | Al-Z | 18x5 50 |
| Buick 32-60 | Tex | Del-R | Del-R | *Own | O | 3 | SM-Own-F | O | Own ¾ | 4.54 | Own | Sag | S 55⅛ | Own | Al-Z | 18x6.00 |
| Buick 32-80 | Tex | Del-R | Del-R | *Own | O | 3 | SM-Own-F | O | Own ¾ | 4.27 | Own | Sag | S 58⅞ | Own | Al-Z | 18x7.00 |
| Buick 32-90 | Tex | Del-R | Del-R | *Own | O | 3 | SM-Own-F | O | Own ¾ | 4.36 | Own | Sag | S 58⅞ | Own | Al-Z | 18x7.00 |
| Cadillac 355 B | Morse | Del-R | Del-R | Own | O | 3 | SM | S | Own ¾ | 4.60 | Own M | Sag | S 58 | Own | Alem | 17x7.00 |
| Cadillac 370 B | Morse | Del-R | Del-R | Own | O | 3 | SM | S | Own ¾ | 4.80 | Own M | Sag | S 58 | Own | Alem | 17x7.50 |
| Cadillac 452 B | Morse | Del-R | Del-R | Own | O | 3 | SM | S | Own ¾ | 4.64 | Own M | Sag | S 60 | Own | Alem | 18x7.50 |
| Chevrolet | Gear | Del-R | *Del-R | Own | O | 3 | SM-F | — | Own ½ | 4.10 | M | Own | S 54 | Own | Alem | 18x5.25 |
| Chrysler 6 | Chain | Del-R | Del-R | *— | O | 3 | — F | — | Own ½ | 4.60 | H | Own | S 53⅜ | — | Alem | 18x5.50 |
| Chrysler 8 | Chain | Del-R | Del-R | *— | O | 4 | — F | — | Own ½ | 4.30 | H | Gem | S 54⅝ | — | Alem | 17x6.50 |
| Chrysler Imp. 8 | Chain | Del-R | Del-R | *— | O | 4 | — F | — | Own ½ | 4.10 | H | Gem | S 57⅛ | — | Al-Z | 17x7.00 |
| Chrysler Imp. 8 Cus. | Chain | Del-R | Del-R | *— | O | 4 | — F | — | Own ½ | 4.10 | H | Gem | S 57½ | — | Al-Z | 17x7.50 |
| Cord (Fr. Wh. Dr.) | Link | Del-R | *Del-R | Long | D | 3 | — | * | Col F | 4.80 | H | Gem | S 62 | Own | Bijur | 18x7.00 |
| De Soto Six | Chain | Del-R | Del-R | *Own | O | 3 | O-F | — | Own ½ | 4.62 | H | Own | S 53⅜ | — | Alem | 18x5.25 |
| De Vaux 6-80 | Morse | Aut-L | *Aut-L | Borg | W | 3 | — | S | ‡AD ½ | 4.40 | M | †W | S 54¼ | Tryon | Al-Z | 19x5.25 |
| Dodge Six D L | Chain | Del-R | — | — | O | 3 | — F | — | Own ½ | 4.60 | H | Own | S 54⅞ | — | Al-Z | 18x5 50 |
| Dodge Eight D K | Chain | Del-R | Del-R | *— | O | 3 | — F | — | Own ½ | 4.10 | H | Gem | S 55 | — | Al-Z | 18x6.00 |
| Essex Gr. Su. 6 | Morse | Aut-L | *Aut-L-S | *Own | O | 3 | SM-WG-F | S | Own ½ | 4.63 | Bendix | Gem | S 54⅛ | Own | Alem | 18x5.25 |
| Ford A | Var-G | Own | *Own | Own | O | 3 | SM | O | Own ¾ | 4.11 | M | Gem | S-Tr 39 | Own | Al-Z | 18x5.25 |
| Ford V8 | Var-G | Own | *Own | Own | O | 3 | SM | O | Own ¾ | 4.11 | M | Gem | S-Tr | Own | Al-Z | 18x5.25 |
| Franklin Airman | Chain | Del-R | *Del-R-S | — | W | 3 | SM-BW-F | M | — ½ | 4.73 | H | Gem | El 42 | — | Al-Z | 19x6.50 |
| Franklin V-12 | Chain | Del-R | *Del-R-S | Long | W | 3 | SM-BW-F | M | Col ½ | 4.45 | H | Ross | S 60 | Fafnir | Al-Z | 17x7.50 |
| Graham 6 (1933) | Link | Del-R | Del-R | *Long | WG | 3 | SM | U | Sal ½ | 4.55 | H | Ross | S 54 | ERS | Al-Z | 17x6.00 |
| Graham 6 | Link | Del-R | Del-R | Long | WG | 3 | WG-F | U | Sal ½ | 4.45 | H | Ross | S 54 | ERS | Al-Z | 17x5 50 |
| Graham 8 | Link | Del-R | Del-R | Long | WG | 3 | SM-WG-F | S | Sal ½ | 4.30 | H | Ross | S 54 | ERS | Al-Z | 17x6.00 |
| Hudson Greater 8 | Morse | Aut-L | *Aut-L-S | *Own | O | 3 | SM-WG-F | S | Own ½ | †4.63 | Bendix | Gem | S 54⅛ | Own | Alem | *17x6.00 |
| Hupmobile 216 | Chain | Aut-L | *A-L-S-§ | Borg | WG | 3 | SM-WG-F | M | Spic ½ | 4.54 | M | Ross | S 53 | Tryon | Al-Z | 18x5.50 |
| Hupmobile 222 | Morse | Aut-L | *A-L-S-§ | Borg | WG | 3 | SM-WG-F | U | Own ½ | 4.36 | M | Gem | S 57½ | Rub-B | Al-Z | 17x6.00 |
| Hupmobile 226 | More | Aut-L | *A-L-S-§ | Long | D | 3 | SM-DG-F | U | Own ½ | 4.36 | M | Gem | S 57½ | Rub-B | Al-Z | 17x6.50 |
| La Salle 345 B | Morse | Del-R | Del-R | Own | O | 3 | SM | S | Own ¾ | 4.60 | Own M | Sag | S 58 | Own | Alem | 17x7.00 |
| Lincoln V-8 | Chain | Aut-L | *Aut-L | Long | O | 3 | SM-F | S | Own F | 4.58 | *Bendix | Own | S 62 | Own | Alem | 18x7.00 |
| Lincoln V-12 | Chain | Aut-L | *Aut-L | Long | O | 3 | SM-F | S | Own F | 4.58 | *Bendix | Own | S 62 | Own | Alem | 18x7.50 |
| Marmon 8 | Diam | Del-R | *Del-R | *— | D | 3 | SM | S | Spic ½ | 4.08 | Bendix | Ross | S 57 | Tryon | Alem | 18x6.00 |
| Marmon 16 | Diam | Del-R | Del-R | Rus | M | 3 | SM | S | Spic ½ | 3.78 | Bendix | Ross | S 59½ | ** | Alem | 18x7.00 |
| Nash Big Six | Chain | Aut-L | *A-L-S-§ | Borg | O | 3 | SM-DG-F | O | Own ½ | 4.70 | M | Ross | S 54 | ERS | Alem | 18x5.25 |
| Nash Stand. Eight | Chain | Aut-L | *A-L-S-§ | Borg | O | 3 | SM-DG-F | O | Own ½ | 4.44 | M | Ross | S 54 | ERS | Alem | 18x5.50 |
| Nash Spec. Eight | Chain | *Aut-L | *A-L-S-§ | Borg | O | 3 | SM-DG-F | O | Own ½ | 4.43 | Bendix | Gem | S 55¾ | * | Bijur | 17x6.50 |
| Nash Adv. Eight | Chain | *Aut-L | *A-L-S-§ | Borg | O | 3 | SM-DG-F | O | Own ½ | 4.50 | Bendix | Gem | S 57⅛ | * | Bijur | 18x7.00 |
| Nash Ambas. Eight | Chain | *Aut-L | *A-L-S-§ | Borg | O | 3 | SM-DG-F | O | Own ½ | 4.50 | Bendix | Gem | S 57⅛ | * | Bijur | 18x7.00 |
| Oldsmobile F-32 | Chain | Del-R | Del-R | Borg | M | 3 | SM-BW-F | S | Own ½ | 4.56 | Bendix | Sag | S 54½ | Tryon | Al-Z | 17x6.00 |
| Oldsmobile L-32 | Chain | Del-R | Del-R | Borg | M | 3 | SM-BW-F | S | Own ½ | 4.77 | Bendix | Sag | S 54½ | Tryon | Al-Z | 17x6.00 |
| Packard Twin Si. | Morse | Aut-L | *Dyn | Long | O | 3 | SM | M | Own ½ | 4.69 | M | Own | S 60½ | Own | Bijur | 18x7.50 |
| Packard Stan. 8 | Morse | N E | *Dyn | Long | O | 3 | SM | M | Own ½ | 4.66 | M | Own | S 60½ | Own | Bijur | 6.50x19 |
| Packard De L. 8 | Morse | N E | *Dyn | Long | O | 3 | SM | M | Own ½ | 4.66 | M | Own | S 60½ | Owr | Bijur | 7.00x19 |
| Packard Light 8 | Morse | N E | *Dyn | *Long | O | 3 | SM | S | Own ½ | 4.66 | M | Own | S 56 | Own | Alem | 17x6.50 |
| Pierce-Arrow 54 | Chain | Del-R | *Del-R-S | Long | O | 3 | SM-F | S | Own ½ | 4.42 | Bendix | Ross | S 61 | Faf | Myers | 18x6.50 |
| Pierce-Arrow 52 | Chain | Del-R | *Del-R-S | Long | O | 3 | SM-F | S | Own ½ | 4.42 | Bendix | Ross | S 61 | Faf | Myers | 18x7.00 |
| Pierce-Arrow 53 | Chain | Del-R | *Del-R-S | Long | O | 3 | SM-F | S | Own ½ | 4.58 | Bendix | Ross | S 61 | Faf | Myers | 18x7.00 |
| Plymouth | Var | Del-R | Del-R | *Own | O | 3 | O-F | O | Own ½ | 4.33 | H | Own | S 53⅜ | — | Al-Z | 18x5.25 |
| Pontiac 6 | Chain | Del-R | Del-R | Own | M | 3 | SM-BW-F | M | Own ½ | 4.55 | Bendix | Sag | S 54 | Inlox | Al-Z | 18x5.25 |
| Pontiac V-8 | Link | Del-R | Del-R | Own | M | 3 | SM-BW-F | M | Own ½ | 4.22 | Bendix | Sag | S 54½ | Inlox | Al-Z | 17x6.00 |
| Reo Fly. Cloud "S" | Chain | Del-R | *Del-R-S | Long | O | 3 | SM-F | S | Own ½ | 4.60 | H | Ross | S 55 | Tryon | AL-Z | 17x5.50 |
| Reo Royale Cust. | Morse | Del-R | Del-R-§ | Long | O | 3 | SHG | U | Own ½ | 4.07 | H | Ross | S 57½ | Own | Far | 6.50x18 |
| Reo Royale | Morse | Del-R | Del-R-§ | Long | O | 3 | SHG | U | Own ½ | 4.07 | H | Ross | S 57½ | Own | Al-Z | 6.50x18 |
| Reo 8-25 | Link | Del-R | *Del-R | Long | O | 3 | SHG | U | Own ½ | 4.90 | H | Ross | S 55¾ | Own | Al-Z | 17x6.50 |
| Rockne 6-65 | Morse | Aut-L | *Aut-L-S | Borg | WG | 3 | SM-BW-F | M | Spic ½ | 4.55 | Bendix | Ross | S 54 | Tryon | Al-Z | 18x5.25 |
| Rockne 6-75 | Chain | Aut-L | *Aut-L-S | Long | WG | 3 | SM-BW-F | M | Own ½ | 4.73 | Bendix | Ross | S 54 | Tryon | Al-Z | 18x5.50 |
| Studebaker 6-55 | Chain | Del-R | *Del-R-S | Long | O | 3 | SM-BW-F | S | Own ½ | 4.27 | Bendix | Ross | S 54 | Tryon | Alem | 18x5.50 |
| Studebaker Dict. 62 | Cel | Del-R | *Del-R-S | Long | O | 3 | SM-BW-F | S | Own ½ | 4.73 | Bendix | Ross | S 54 | Tryon | Alem | 18x5.50 |
| Studebaker Com. 71 | Cel | Del-R | *Del-R-S | Long | O | 3 | SM-BW-F | S | Own ½ | 4.73 | Bendix | Ross | S 56 | Faf | Alem | 18x6.00 |
| Studebaker Pres. 91 | Var-G | Del-R | *Del-R-S | Borg | O | 3 | SM-BW-F | S | Own ½ | 4.31 | Bendix | Ross | S 60 | Faf | Alem | 18x6.50 |
| Stutz LAA | Link | Del-R | Del-R | Borg | D | 4 | — | U | Sal ½ | 5.10 | H | Gem | S 60 | Own | Bijur | 19x6.50 |
| Stutz SV-16 | Link | Del-R | Del-R | Long | M | 3 | SM | M | Tim ½ | 4.75 | H | Gem | S 62¾ | Own | Bijur | 18x7.00 |
| Stutz DV-32 | Link | Del-R | Del-R | Long | M | 3 | SM | M | Tim ½ | 4.50 | H | Gem | S 62¾ | Own | Bijur | 18x7.00 |
| Will.-Ov'land 6-90A | Link | Aut-L | *Aut-L-S | Own | O | 3 | SM-F | S | Own ½ | 4.60 | Bendix | Own | S 51 | Tryon | Alem | 18x5.25 |
| Will.-Ov'land 8-88A | Link | Aut-L | *Aut-L-S | Borg | O | 3 | SM-F | S | Own ½ | 4.40 | Bendix | Ross | S 56 | Tryon | Alem | 18x5.50 |
| Willys-Knight 66E | Link | Aut-L | *Aut-L-S | Rock | O | 3 | SM-F | S | Own ½ | 4.18 | Bendix | Ross | S 56 | Tryon | Alem | 17x6.00 |

### KEY TO ABBREVIATIONS

**Weight** — ‡Austin standard 2 passenger coupe. Stutz DV 145-inch wheel base weighs 5,352. †Tudor sedan.

**Engine Make**—Con, Continental; Lyc, Lycoming. *Air-cooled with spot temperature control. †Thermo syphon water circulation. §Floating power.

**Thermostat**—Bish-Bab, Bishop & Babcock, Dole, Dole Valve Co., Chicago, Ill.; Ful, Fulton Co.; Har, Harrison; Pines, Pines Winterfront Var, various makes.

**Valve Arrangement**—L, L head; H, horizontal O, overhead; E, sleeve valve LV V-type L head. HO, Horizontal Opposed.

**Piston Material**—*Alum, aluminum with invar struts. Alum, aluminum alloy; CI cast iron; S, St, semi-steel; Lo-Ex, Aluminum Corporation of America.

**Oil Purifier**—Wal, Wall; Han, Handy; AC, AC Spark Plug Company; Ste, Stewart-Warner; Ski, Skinner; Flo, Floato; Cuno, Cuno Engineering Corp; Pur, Purolator. *Using both Floato and Skinner. †Using AC with Floato attachment. **Using both AC and Purolator.

**Fuel Cleaner**—AC, AC Spark Plug Co.; Gas, Gascolator; Ste, Stewart-Warner; Til, Tillotson; V-S, Van Sicklen.

**Carburetor**—Sch, Wheeler Schebler; Zen, Zenith; Mar, Marvel; Car, Carter; Str, Stromberg; DL, Detroit Lubricator; Til, Tillotson; B&B, Ball & Ball.

**Air Cleaner**—AC, AC Spark Plug Company; AM, Air Maze; Un, United; Til, Tillotson.

**Front End Drive**—Link, Link Belt; Tex, Texolite; Cel, Celeron; Diam, Diamond Chain; Morse, Morse Chain Company; Var, various makes of chains; Var-G various makes of gears.

**Ignition, Generator and Starter**—Aut-L, Auto-Lite; A-L, Auto-Lite; Del-R, Delco-Remy; Dyn, Owen-Dyneto Corp.; N E, North East. *Nash.—Indicates twin ignition. *Bendix starter used. S—Startix equipped. §Startix optional equipment.

**Clutch**—Borg, Borg & Beck; Br-L, Brown-Lipe; Rock, Rockford Machine; Long Long Clutch Company; Rus, Russell Mfg. Co. *Bendix Clutch Control.

**Transmission Make**—D, Detroit Gear; WG Warner Gear Company; M, Muncie Gear Company; O, Own; N, New Process Gear Corp.; W, Warner Corp. *Franklin Transcontinent models are equipped with both Warner and Detroit 3 or 4 speed gear sets, according to body type.

**Transmission Type**—DG, Detroit Gear & Machine Co.; LGS, The LGS Corp.; F, Free Wheeling; SM, Synchro Mesh; BW Borg-Warner; NP—New Process Gear Corp.; WG, Warner Gear Co.; SHG, Synchronized Herringbone Gear.

**Universals**—U, Detroit Universal Products; S, Spicer Mfg. Corp.; O, Own, M, Mechanics Universal Joint Company. *Cord using Detroit Universal Products and Mechanical Universal Joint Co.

**Leaf Ar'e**—Col Columbia; Sal, Salisbury, Spic, Spicer Mfg. Corp.; Tim, Timken; N.P., New Process Gear Corp.; ½, Semi-floating; ¾, ¾ floating; F, Full floating; ‡Adams used on custom models.

**Ratio**—*Dual ratio optional; Hudson 132-in. wheel base models have rear axle ratio of 5.10.

**Brakes**—H, hydraulic; M, mechanical; Bendix, Bendix Brake Corp. *Equipped with Vacuum Booster.

**Steering Gear**—Gem, Gemmer; Ross, Ross Gear and Tool Company; Sag, Saginaw Say-B Saylor-Beall Manufacturing Company; War, Warner; N P., New Process Gear Corp. †Ross used on custom models.

**Rear Springs** — S, semi-elliptic; El, full elliptic; Cant, semi-cantilever; S-Tr semi-transverse.

**Spring Shackles**—Tryon, Willys-Morrow Company; Rub B, Rubber Shock Insulator Company; Faf, Fafnir Bearing Company; ERS, Eaton Products, Inc.; Inlox—Inland Mfg Co.; *Tryon, front. ERS, rear. *Own, front. ERS, rear. **Using both Rubber-B and Fafnir.

**Chassis Lubricator**—Alem, Alemite; Al-Z, Alemite Zerk; Bijur, Bijur Lubricating Corp.; Far, Farval. Myers—Chassis Lubricating Co.

**Tires**—Auburn 8 custom models equipped with 17x6.00. *Hudson 122-in. wheel base models equipped with tires 17x6.50. Stutz 145-inch wheelbase models have 20x7.00 tires.

## NEW CAR POLISHER

**The United States Electrical Tool Company has just put out a new electric car polisher, which is designed to eliminate many hours of hand polishing. It is claimed that an ordinary sedan can be polished by means of this tool in less than half the time required for hand polishing.**

The tool is stated to be extra light, with armature, gears and spindles carried on heavy duty ball bearings. The motor is a universal type, operating on either direct or alternating currents of 60 cycles or less and furnished for 32, 110, 220 or 250 volts. The switch is placed in the handle.

Standard equipment furnished with the No. 0 polisher includes two lamb's wool bonnets, an attachment plug, an 18-foot rubber covered cable and a gallon of United States polish. The tool lists at $33.50.

**CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS**

## RUBBER ASSOCIATION CAMPAIGN

The Rubber Association of America is putting out three pieces of educational literature as part of its campaign to reduce unwarranted adjustment losses. One of these is a sheet showing in text and pictures how fabric breaks occur, with the suggestion of how to avoid them. The second shows causes of rapid tire wear and the third deals with truck tire failures.

All these posters show in the simplest and most easily understood way how tire failures occur and how they may be avoided.

### OKLAHOMA CITY HAS RIGHT TO REGULATE OIL

**Oklahoma City, Okla.,** July 1.—The city of Oklahoma City has the power, under its zoning authority (Chapter 178, Sessions Laws of 1923), to regulate and restrict the use of real estate within the city limits for the development and production of oil and gas therefrom, the state Supreme Court has held in affirming a decision of the Oklahoma County District Court granting an injunction to the city against Walter H. Gant, Knox L. Garvin and A. D. Hudspeth drilling an oil well without posting with the city building commissioner a $200,000 bond.

**70**

**Manufacturers of Automotive Vehicles Equip with**

**ROSS**

**Roller Mounted CAM AND LEVER Steering**

★

**This is the most efficient steering gear ever developed and therefore is the *easiest steering, regardless of the type of tires used.***

★

**See Fifth Column to Left**

**Please see the fifth column to the left, giving steering gear information. Notice the outstanding Ross predominance. This preference for Ross exists not only in the passenger car field, but in the truck and bus field and other divisions of the automotive industry as well. Passenger Car figures are:**

**ROSS**

**26**

**First Competitor**

**18**

**Second Competitor**

**12**

**Third Competitor**

**1**

**Build their own**

**12**

**206 Engineering Staffs Prefer Ross**

# A Correlation of Some Mechanical and Magnetic Properties of 1.21% Carbon Tool Steel

(Continued from Page 5)

smaller areas of martensite. The point where the martensite completely disappears and only carbide and ferrite remain, is outside the scope of this experiment. At the highest tempering temperature employed, 700° F. (370° C.), the martensite "warms" are mere remnants from which visible carbide nodules are beginning to separate. The shrinkage of the martensite areas leaves at their boundaries carbon-poor areas which rapidly etch dark. These dark areas grow in size with increasing tempering temperatures and appear to be the beginning of the formation of a ferrite matrix.

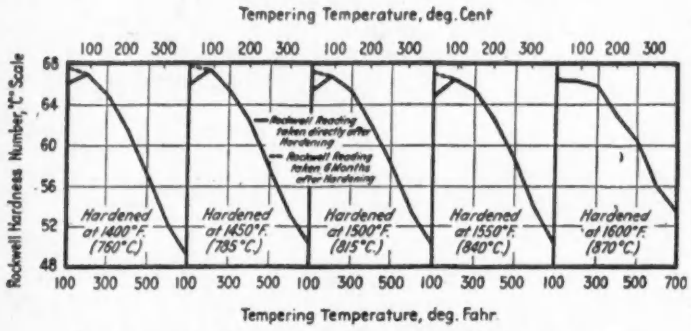

Tempering Temperature, deg. Cent
100 200 300 100 200 300 100 200 300 100 200 300 100 200 300
Rockwell Hardness Number, "C" Scale
68
64
60
56
52
48
Rockwell Reading taken directly after Hardening
Rockwell Reading taken 6 Months after Hardening
Hardened at 1400°F. (760°C.)
Hardened at 1450°F. (785°C.)
Hardened at 1500°F. (815°C.)
Hardened at 1550°F. (840°C.)
Hardened at 1600°F. (870°C.)
100 300 500 100 300 500 100 300 500 100 300 500 100 300 500 700
Tempering Temperature, deg. Fahr.

FIG. 6.—Relation of Rockwell Hardness to Tempering Temperatures.

**Analysis of the Magnetic Properties:** Fig. 12 shows graphically the relation between the observed magnetic characteristic and the quenching temperature for the undrawn specimens and those tempered at temperatures of 400, 500 and 700° F. (205, 260 and 370° C.). The curves for other tempering temperatures lie in intermediate positions and are of similar nature. It is of particular interest to note the regular variation of magnetic characteristic with quenching temperature.

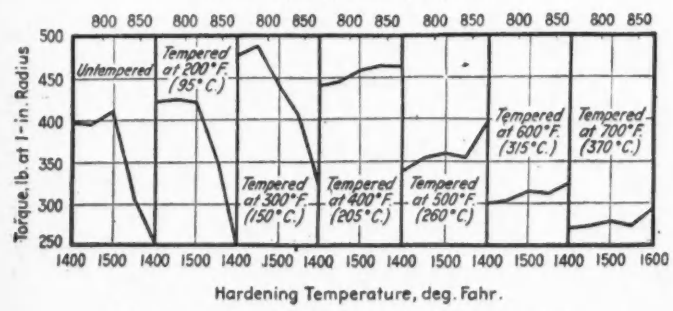



FIG. 7.—Relation of Torque to Hardening Temperatures.

The effect of tempering temperature is more clearly shown in Fig. 13, in which the observed magnetic characteristics are plotted against tempering temperature for three different quenching temperatures. These curves represent the typical behavior of carbon steel. $B^m$ and $B^r$ show a marked increase for tempering temperatures between 300 and 500° F. (150 and 260° C.), while the values of Ic show a corresponding decrease.

The thermomagnetic data are of considerable interest because of the light they shed on the tempering process. There are many points to be cleared up before the data of thermomagnetic analysis can be interpreted with certainty, but it appears that this method has much to offer in connection with the study of the phenomena associated with the heat treatment of steel. As the quenching temperatures employed are all below the $A^{cm}$ point, complete solution of the carbide was not obtained. This is shown by the presence of the thermomagnetic $A_0$ transformation. This transformation is not ordinarily observed in quenched hypo-eutectoid steels. The changes due to tempering at different temperatures are mirrored in the thermomagnetic analysis curve.

The magnetic effect of tempering at 200° F. (95° C.) appears to be of a temporary nature. The magnetization rises about 1 per cent. at the tempering temperature, but does not change during the half hour of holding at temperature and returns to the original value upon cooling. Upon holding at 300° F. (150° C.) the magnetization increases about 1½ per cent. This increase persists upon cooling. It appears that some definite and irreversible change in the material has taken place. When the specimen is held a half hour at 390° F. (200° C.), a still greater increase in the magnetization is observed amounting to about 7 per cent., most of which is retained upon cooling. As cooling starts, there is an initial increase in magnetization, probably due to the carbide. There is some doubt as to the cause of the increase upon holding at 400° F. (205° C.), but Ellinger[1] attributes it mainly to the release of stress. In a hypo-eutectoid steel held at this temperature there is no indication of an $A_0$ transformation on cooling which has been taken to indicate that no carbide was formed at this temperature.

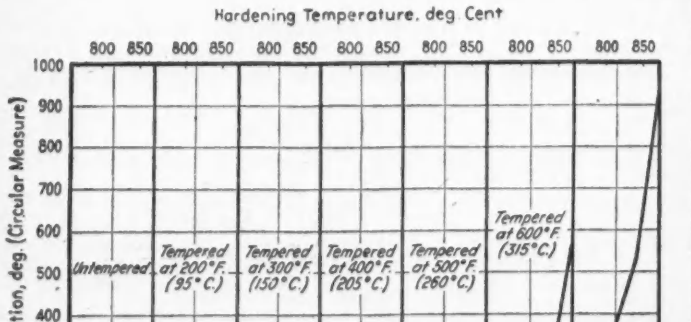



FIG. 8.—Relation of Plastic Deformation to Hardening Temperatures.

Holding at 500° F. (260° C.) produces an increase in magnetization of nearly 30 per cent. This may be attributed to the transformation of the nonmagnetic gamma iron retained as austenite upon quenching to the magnetic alpha iron. A certain amount of carbide may also be formed at this temperature. This would be indicated by the increase in magnetization upon cooling from above the $A_0$ temperature. This increase amounted to approximately 12 per cent. At 600° F. (315° C.) and 700° F. (370° C.) a decrease in magnetization occurs upon holding at temperature for a half hour. The decreases of 7 per cent. and 2 per cent., respectively, probably result from the formation of cementite, which is nonmagnetic at these temperatures. This is further indicated by the greatly increased $A_0$ transformation upon cooling.

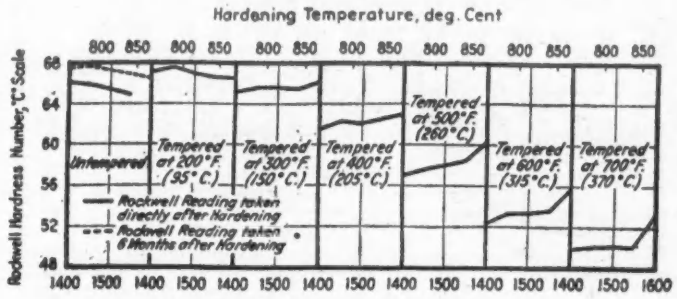

Hardening Temperature, deg. Cent
800 850 800 850 800 850 800 850 800 850 800 850 800 850
Rockwell Hardness Number, "C" Scale
68
64
60
56
52
48
Unhardened
Tempered at 200°F. (95°C.)
Tempered at 300°F. (150°C.)
Tempered at 400°F. (205°C.)
Tempered at 500°F. (260°C.)
Tempered at 600°F. (315°C.)
Tempered at 700°F. (370°C.)
Rockwell Reading taken directly after Hardening
Rockwell Reading taken 6 Months after Hardening
1400 1500 1400 1500 1400 1500 1400 1500 1400 1500 1400 1500 1400 1500 1600
Hardening Temperature, deg. Fahr.

FIG. 9.—Relation of Rockwell Hardness to Hardening Temperatures.

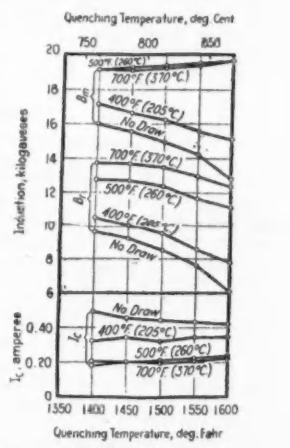



FIG. 12.—Effect of Quenching Temperature on Magnetic Characteristics.

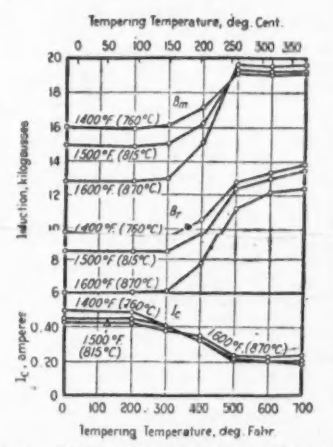



FIG. 13.—Effect of Tempering Temperature on Magnetic Characteristics.

## CORRELATION OF MAGNETIC AND MECHANICAL PROPERTIES

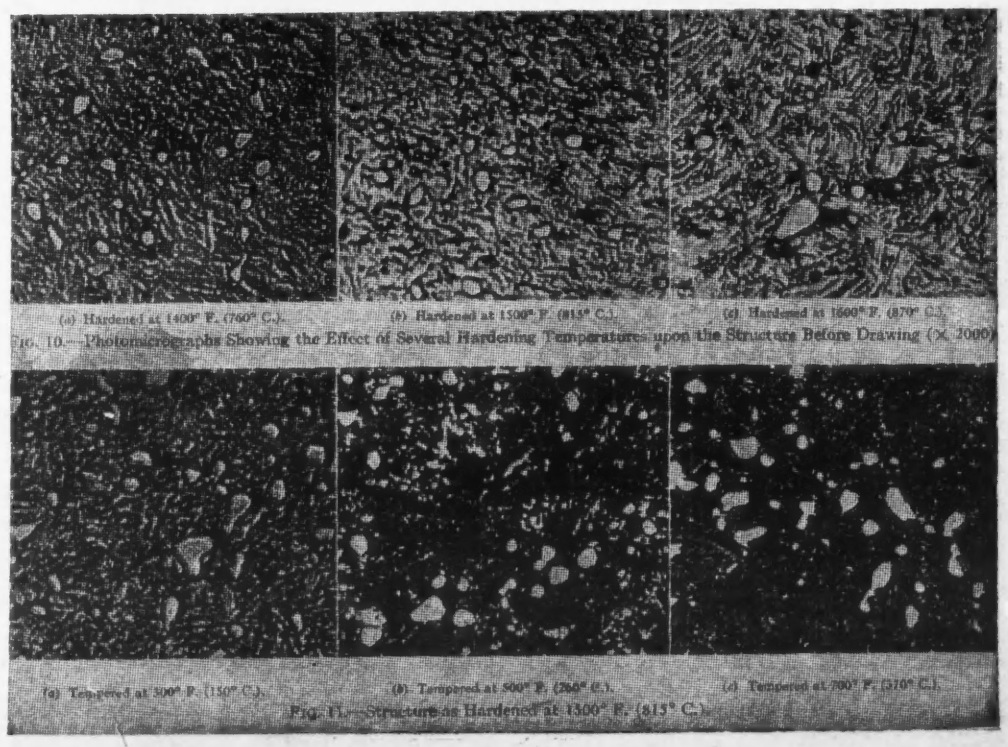
In this investigation, six materially different physical properties have been measured, three of which were mechanical and three magnetic. An outstanding conclusion drawn from the results is that each property has its own individuality which is distinct from that of the other properties. Relationships between the several properties are not always obvious and when they do appear to exist, it may be for only a limited range of heat treatments. This behavior indicates that the changes taking place in the constitution of the steel during the heat treatments employed are very complex in their nature.

An attempt was made to discover what relationships might exist between any of the observed magnetic characteristics and any of the mechanical properties without regard to the heat treatment by which the properties were developed. This was done by plotting the values obtained in the mechanical tests against the corresponding values obtained in the magnetic tests. As has been experienced in other attempts of a similar nature, with the possible exception of the work reported by Gebert[1], no definite relationships were discovered in this way. As usual, certain quite definite trends were found, particularly in the relationship between hardness and the coercive force. The data, however, do not furnish any practical basis for the prediction of the mechanical properties of a given specimen solely from a knowledge of its magnetic characteristics because there is too great a scatter in the plotted points. This cannot be properly attributed to experimental error, since close agreement was found between the results for all specimens given the same treatment.

The limitations of space do not permit showing the results of plotting the data as indicated above, but the situation can be appreciated by reference to the curves given in Figs. 4 to 9 and 12 and 13. It is to be noted that the maxima in the curves of mechanical properties have no counterpart in any of the curves of magnetic properties. Furthermore for tempering temperatures of 500° F. (260° C.) and above, there is practically no differentiation in terms of magnetic characteristics, although there is considerable variation in all of the observed mechanical characteristics. On the other hand, the pronounced variations in magnetic properties in the range of tempering temperatures between 300 and 500° F. (150 and 260° C.) have no counterpart in the curves of mechanical characteristics.

Although the establishment of relationships by means of which mechanical properties could be estimated in terms of data on the magnetic properties is greatly to be desired, the lack of such relationships should not be interpreted to mean that the methods of magnetic analysis have no practical value. The erratic hardening of the first lot of specimens, due to the quenching speed being too slow, was promptly discovered by variations in the magnetic properties and the nature of the difficulty was afterwards confirmed by the results of mechanical and microscopic tests. Such results clearly demonstrate the value of magnetic analysis for controlling uniformity of product. For materials of the same composition and subjected to a treatment known to yield the desired results under normal conditions, variations in magnetic properties exceeding a certain experimentally determined tolerance can surely be taken to indicate unsatisfactory mechanical quality. A very valuable inspection method capable of application at each stage in the process of manufacture is thus afforded. It is only necessary to determine the most convenient magnetic criterion and to design apparatus adapted to the size and shape of the article to be tested. This should be done with a full knowledge of the limitations of the method, as it appears possible that quite appreciable variations in certain regions of tempering temperatures might not be detected by the magnetic tests. Several such applications are in successful operation at the present time.

Magnetic analysis bids fair to be even more valuable as a tool in the hands of the investigator in the field of metallurgical research. The phenomena associated with the heat treatment of steel can be closely followed by means of non-destructive magnetic tests.



(a) Hardened at 1400° F. (760° C.). (b) Hardened at 1500° F. (815° C.). (c) Hardened at 1600° F. (870° C.).

FIG. 10.—Photomicrographs Showing the Effect of Several Hardening Temperatures upon the Structure Before Drawing (× 1000).

(a) Tempered at 300° F. (150° C.). (b) Tempered at 500° F. (260° C.). (c) Tempered at 700° F. (370° C.).

FIG. 11.—Structure as Hardened at 1500° F. (815° C.).